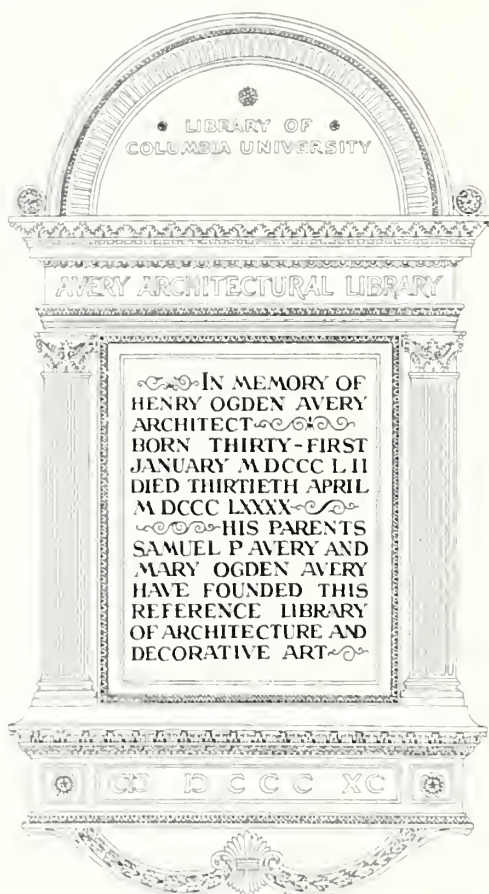


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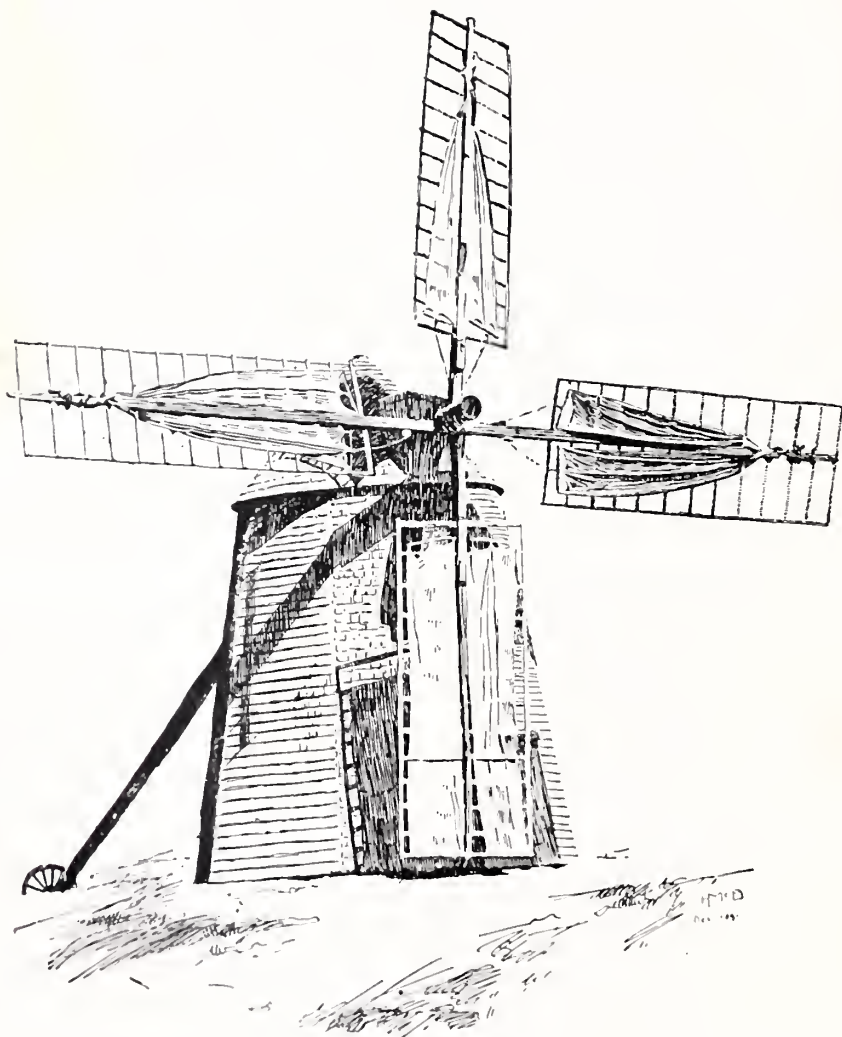
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# SMITH & WINCHESTER

## ILLUSTRATED CATALOGUE

OF

STEAM, WATER, GAS AND PLUMBING  
SUPPLIES, WIND ENGINES, PUMPS,  
ARTESIAN WELLS, TOOLS, ETC.

1894

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## STANDARD SIZES WROUGHT IRON PIPE.

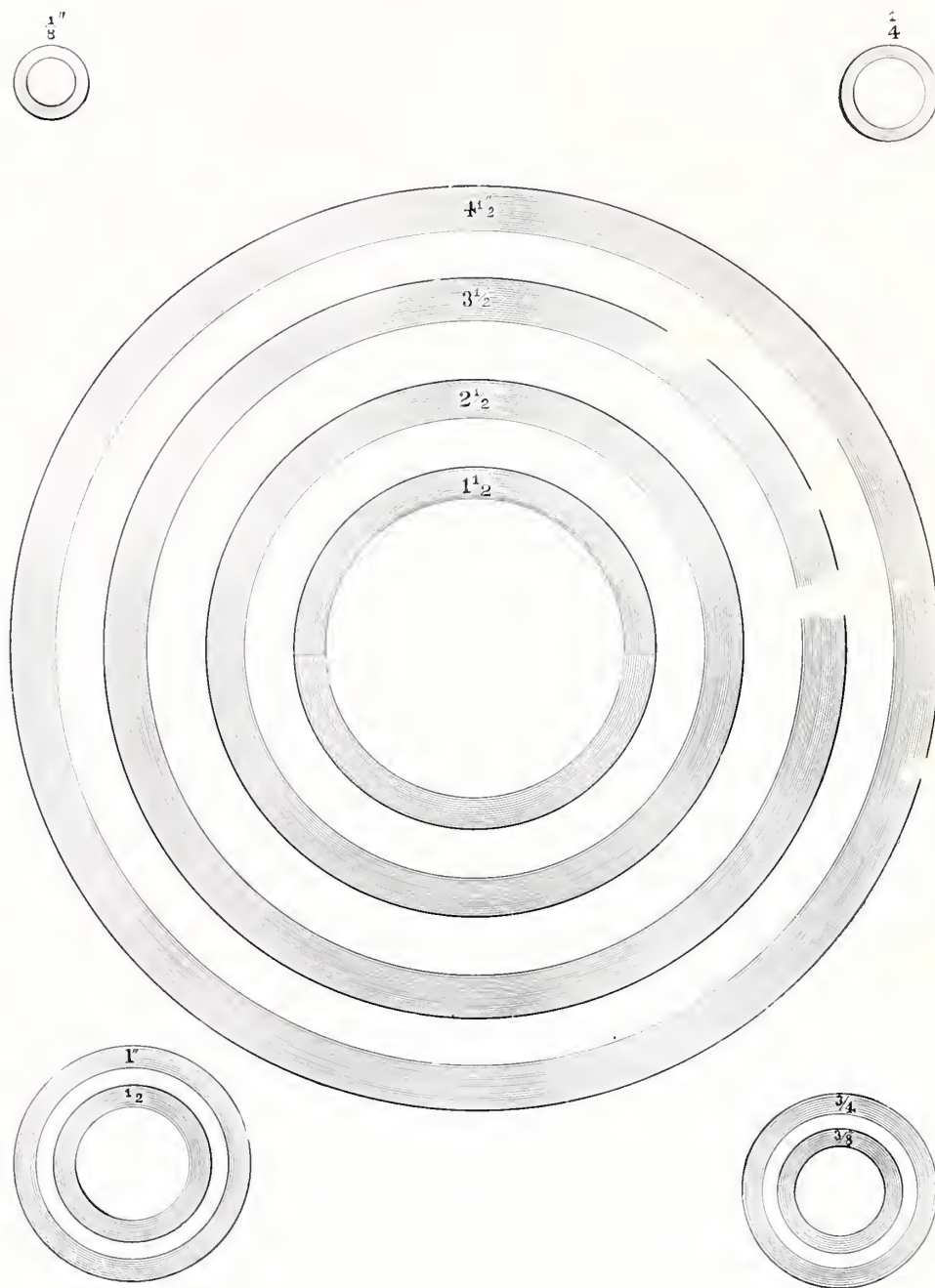


Fig. 1.

We keep in stock a full line of the various sizes of pipe, and will make to order other sizes not specified in this catalogue.



# STANDARD SIZES WROUGHT IRON PIPE.

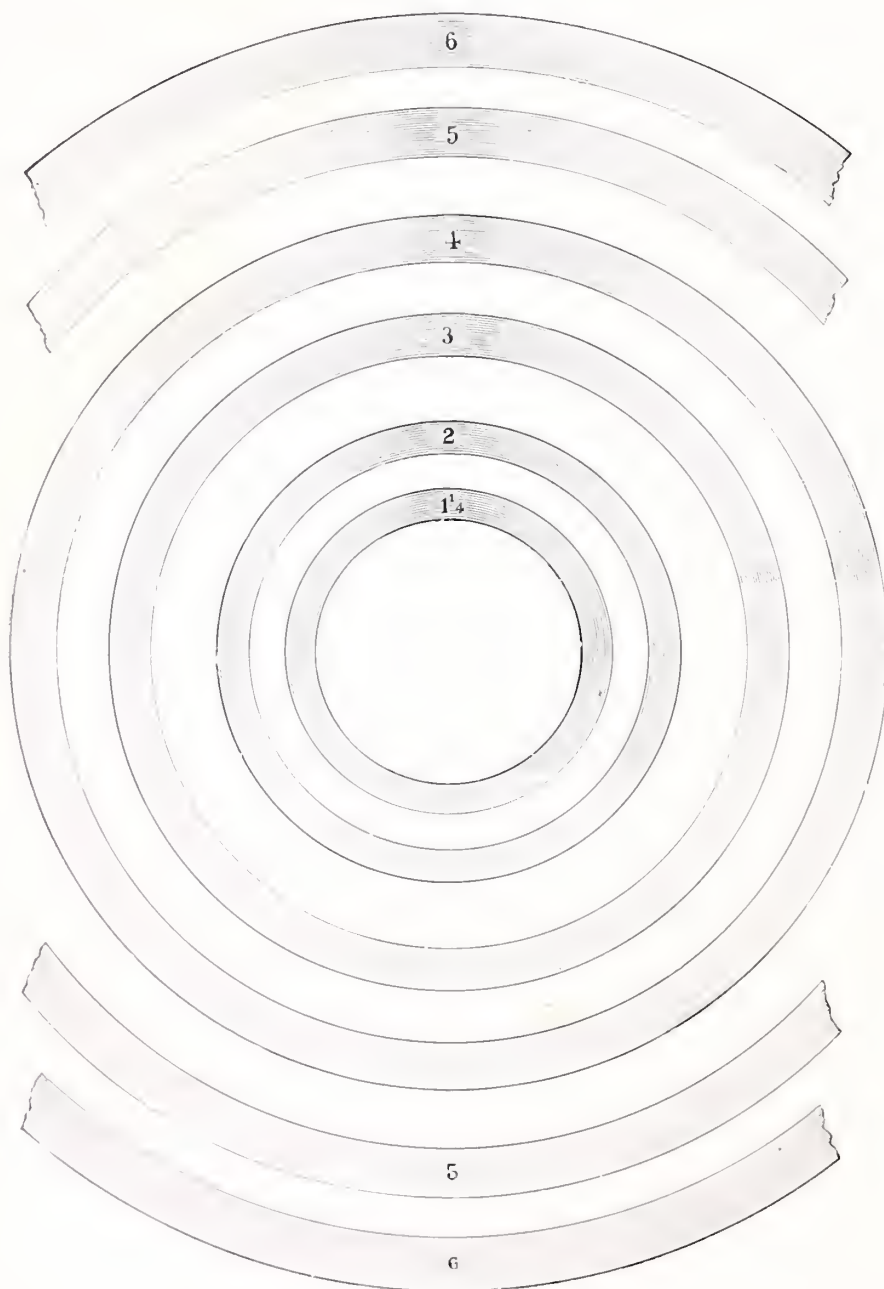


Fig. 2.

We keep in stock a full line of the various sizes of pipe, and will make to order other sizes not specified in this catalogue.

## PIPE CUTTING.

We wish to call especial attention to our facilities for cutting and fitting Wrought Iron and Brass Pipe from plans or specifications. With a large number of the latest and most improved machines and skilled workmen in this department, we solicit your orders, and guarantee satisfaction.

### PRICE-LIST OF WROUGHT IRON PIPE.

Owing to frequent changes in the List of Wrought Iron Pipe, we advise customers to send for latest List from time to time, which we can furnish already gummed for attaching to this page.

APRIL 13, 1893.

TO TAKE THE PLACE OF ALL PREVIOUS LISTS.

Subject to change without notice.

#### BUTT WELDED.

INSIDE DIAMETER.	PRICE PER FOOT, Plain.	PRICE PER FOOT, Tarred.	PRICE PER FOOT, Galvanized.	PRICE, PATENT Enamelled.	WEIGHT PER FOOT.	INSIDE DIAMETER.	PRICE PER FOOT, Plain.	PRICE PER FOOT, Tarred.	PRICE PER FOOT, Galvanized.	PRICE, PATENT Enamelled.	WEIGHT PER FOOT.
Inches.	\$ c.	\$ c.	\$ c.	\$ c.		Inches.	\$ c.	\$ c.	\$ c.	\$ c.	
$\frac{1}{8}$	.04	....	.05	....	.24	$\frac{3}{4}$	.07 $\frac{1}{2}$	.09	.10	.14	1.12
$\frac{1}{4}$	.04	.04 $\frac{1}{2}$	.05	.08	.42	1	.11	.13	.14	.20	1.67
$\frac{3}{8}$	.04 $\frac{1}{2}$	.05 $\frac{1}{2}$	.05 $\frac{1}{2}$	.08 $\frac{1}{2}$	.56	1 $\frac{1}{4}$	.14 $\frac{1}{2}$	.17	.19	.30	2.24
$\frac{1}{2}$	.06	.07	.08	.11	.84						

DISCOUNTS. *Black, Tarred, Galvanized, Enamelled,*

#### LAP WELDED.

1 $\frac{1}{2}$	.24	.30	.28	.47	2.68	7	2.10	....	....	....	23.27
2	.33	.39	.38	.64	3.61	8	2.75	....	....	....	28.18
2 $\frac{1}{2}$	.50	.58	.57	1.00	5.74	9	3.75	....	....	....	33.70
3	.64	.73	.70	1.30	7.54	10	4.75	....	....	....	40.06
3 $\frac{1}{2}$	.76	.91	.90	1.70	9.00	11	6.00	....	....	....	45.02
4	.90	1.10	1.05	2.05	10.66	12	7.00	....	....	....	49.00
4 $\frac{1}{2}$	1.06	1.36	1.31	2.60	12.34	13	8.00	....	....	....	54.00
5	1.28	1.58	1.60	3.00	14.50	14	9.50	....	....	....	58.00
6	1.65	2.00	2.00	4.00	18.76	15	11.00	....	....	....	62.00

DISCOUNTS. *Black, Tarred, Galvanized, Enamelled,*

For Pipe cut to lengths the discount will be 5% less on the list price.

# WROUGHT IRON WELDED STEAM, GAS AND WATER PIPE.

## PLAIN—GALVANIZED—TARRED—ENAMELED—RUSTLESS.

TABLE OF STANDARD DIMENSIONS.

1½ inch and below Butt-welded proved to 300 lbs. per square inch by hydraulic pressure.  
1½ inch and above Lap-welded proved to 500 lbs. per square inch by hydraulic pressure.

Diameter.		Circumference.		Transverse Areas.				Length of Pipe per Square Foot of		Weight per Nominal Foot	Number of Threads per Inch of Screw.	Contents in Gallons per Foot.		
Nominal Internal.	Actual External.	Actual Internal.	Thickness.	External.	Internal.	External.	Internal.	External Surface.	Internal Surface.					
Inches.	Inches.	Inches.	Inches.	Inches.	Sq. Inches.	Sq. Inches.	Sq. Inches.	Feet.	Feet.	Pounds				
$\frac{1}{2}$	.405	.27	.068	1.272	.818	.129	.0573	.0717	9.44	11.15	25.13.	.241	27	. . .
$\frac{3}{4}$	.54	.364	.088	1.696	1.114	.229	.1041	.1249	7.075	10.49	1383.3	.42	18	. . .
1	.675	.494	.091	2.121	1.552	.358	.1917	.1663	5.657	7.73	751.2	.559	18	. . .
$1\frac{1}{4}$	.84	.623	.109	2.639	1.957	.554	.3048	.2492	4.547	6.13	472.4	.837	11	.0102
$1\frac{3}{4}$	1.05	.824	.113	3.299	2.589	.866	.5333	.3327	3.637	4.635	270.	1.115	11	.0230
1	1.315	1.048	.134	4.131	3.292	1.358	.8626	.4954	2.904	3.645	166.9	1.668	11½	.0180
1½	1.66	1.38	.14	5.215	4.335	2.164	1.496	.668	2.301	2.768	96.25	2.244	11½	.0638
1½	1.9	1.611	.145	5.969	5.061	2.835	2.638	.797	2.01	2.371	70.66	2.678	11½	.0918
2	2.375	2.067	.154	7.461	6.491	4.43	3.356	1.074	1.608	1.848	42.91	3.609	11½	.1632
2½	2.875	2.468	.204	9.032	7.753	6.492	4.784	1.708	1.328	1.547	30.1	5.739	8	.2550
3	3.5	3.067	.217	10.996	9.636	9.621	7.388	2.243	1.091	1.245	19.5	7.536	8	.3673
3½	4.	3.548	.226	12.566	11.146	12.566	9.887	2.679	.955	1.077	14.57	9.001	8	.4998
4	4.5	4.026	.237	14.137	12.648	15.901	12.73	3.174	.849	.949	11.31	10.665	8	.6528
4½	5.	4.508	.246	15.708	14.162	19.635	15.961	3.674	.764	.848	9.02	12.49	8	.8263
5	5.563	5.045	.259	17.477	15.849	24.306	19.99	4.316	.687	.757	7.2	14.502	8	1.0200
6	6.625	6.065	.28	20.813	19.054	34.472	28.888	5.584	.577	.63	4.98	18.762	8	. . .

For List Prices on Pipe see latest Pipe Card.

# WROUGHT IRON WELDED STEAM, GAS AND WATER PIPE.

## CONTINUED.

TABLE OF STANDARD DIMENSIONS.

Diameter.		Thickness.	Circumference.		Transverse Areas.			Length of Pipe per Square Foot of		Length of Pipe containing one Cubic Foot.	Weight per Nominal Foot.	Number of Threads per Inch of Screw.	
Nominal Internal.	Actual External.		Actual Internal.	Inches.	External.	Internal.	Sq. Inches.	External.	Internal.				Surface.
Inches.	Inches.	Inches.	Inches.	Inches.	Inches.	Sq. Inches.	Sq. Inches.	Sq. Inches.	Feet.	Feet.	Pounds		
7	7.025	7.023	.301	23.955	22.063	45.664	38.738	6.926	.501	.544	3.72	23.271	x
8	8.025	7.982	.322	27.096	25.076	58.426	50.04	8.386	.443	.478	2.88	28.177	x
9	9.025	8.937	.344	30.238	28.076	72.76	62.73	10.03	.397	.427	2.29	33.701	x
10	10.75	10.019	.366	33.772	31.477	90.763	78.839	11.924	.355	.382	1.82	40.065	x
11	11.75	11.	.	36.914	34.558	108.434	95.033	13.401	.325	.347	1.51	45.028	x
12	12.75	12.	.	40.055	37.7	127.677	113.098	14.579	.299	.319	1.27	48.985	x
13	14.	13.25	.	43.982	41.626	153.938	137.887	16.051	.273	.288	1.04	53.921	x
14	15.	14.25	.	47.124	44.768	176.715	159.485	17.23	.255	.268	.903	57.893	x
15	16.	15.43	.	50.26	48.48	201.06	187.04	14.92	.239	.248	.77	62.	x
16	17.	16.4	.	53.41	51.52	226.98	211.24	15.74	.225	.233	.68	.	x
17	18.	17.32	.	56.55	54.41	254.47	235.61	18.86	.212	.221	.61	.	x

For List on Pipe see latest Pipe Card. Prices quoted on application.



# STANDARD SIZES WROUGHT IRON PIPE.

EXTRA STRONG.



Fig. 3.  
1/4 Inch Extra Strong.



Fig. 4.  
Tube of Special Thickness.  
As Ordered.



Fig. 5.  
3/8 Inch Extra Strong.

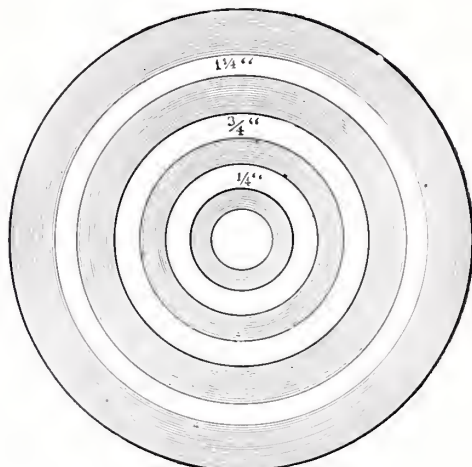


Fig. 6.  
2 Inch Extra Strong.

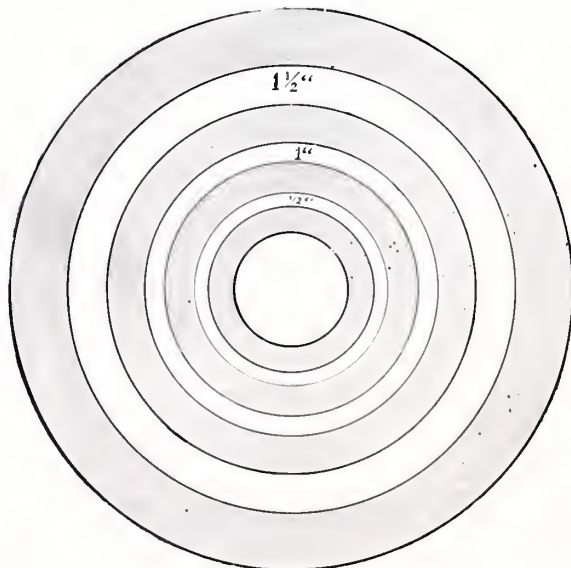


Fig. 7.  
2 1/2 Inch Extra Strong.

We keep in stock a full line of the various sizes of pipe, and will make to order other sizes not specified in this catalogue.

# WROUGHT IRON WELDED EXTRA STRONG PIPE.

TABLE OF STANDARD DIMENSIONS.

Diameter.		Thickness.	Nearest Wire Gauge.	Circumference.		Transverse Areas.			Length of Pipe per Square Foot of		Nominal Weight per Foot.
Nominal Internal.	Actual External.			External	Internal.	External.	Internal.	Metal.	External Surface.	Internal Surface.	
Inches.	Inches.	Inches.	No.	Inches.	Inches.	Sq. Inches.	Sq. Inches.	Sq. Inches.	Feet.	Feet.	Pounds.
$\frac{1}{8}$	.405	.205	12 $\frac{1}{2}$	1.272	.644	.129	.033	.086	9.433	18.632	.29
$\frac{1}{4}$	.54	.294	11	1.696	.924	.229	.068	.161	7.075	12.986	.54
$\frac{3}{8}$	.675	.421	10 $\frac{1}{2}$	2.121	1.323	.358	.139	.219	5.657	9.07	.74
$\frac{1}{2}$	.84	.542	9	2.639	1.763	.554	.231	.323	4.547	7.046	1.09
$\frac{5}{8}$	1.05	.736	8 $\frac{1}{2}$	3.299	2.312	.866	.452	.414	3.637	5.109	1.39
1	1.315	.951	7	4.131	2.988	1.358	.71	.648	2.904	4.016	2.17
1 $\frac{1}{4}$	1.66	1.272	6 $\frac{1}{2}$	5.215	3.996	2.164	1.271	.893	2.301	3.003	3.
1 $\frac{1}{2}$	1.9	1.494	6	5.969	4.694	2.835	1.753	1.082	2.01	2.556	3.63
2	2.375	1.933	5	7.461	6.073	4.43	2.935	1.495	1.608	1.975	5.02
2 $\frac{1}{2}$	2.875	2.315	2	9.032	7.273	6.492	4.209	2.283	1.328	1.649	7.67
3	3.5	2.892	1	10.996	9.085	9.621	6.569	3.052	1.090	1.328	10.25
3 $\frac{1}{2}$	4.	3.358	0	12.566	10.549	12.566	8.856	3.71	.955	1.137	12.47
4	4.5	3.818	0	14.137	11.995	15.904	11.449	4.455	.849	1.	14.97
5	5.563	4.813	00	17.477	15.120	24.306	18.193	6.12	.687	.793	20.54
6	6.025	5.75	000	20.813	18.064	34.472	25.967	8.505	.577	.664	28.58

For List on Pipe see latest Pipe Card.

# STANDARD SIZES WROUGHT IRON PIPE.

DOUBLE EXTRA STRONG.

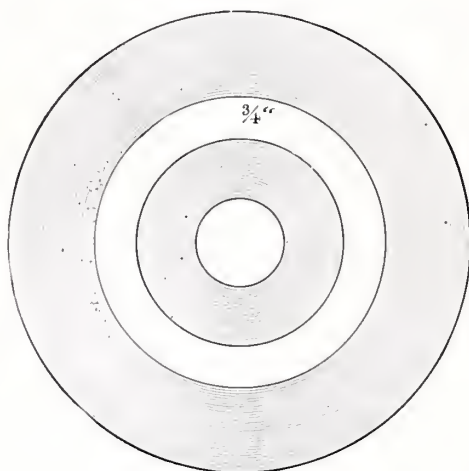


Fig. 8.

2 Inch Double Extra Strong.

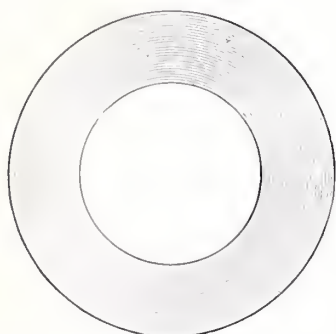


Fig. 9.

1  $\frac{1}{4}$  Inch Double Extra Strong.



Fig. 10.

$\frac{1}{2}$  Inch Double Extra Strong.

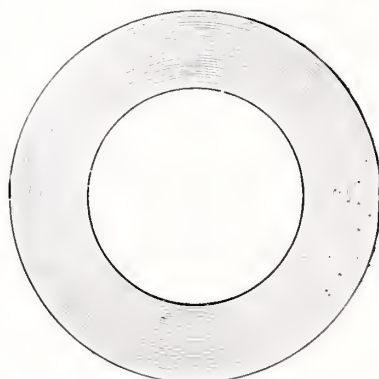


Fig. 11.

1  $\frac{1}{2}$  Inch Double Extra Strong.

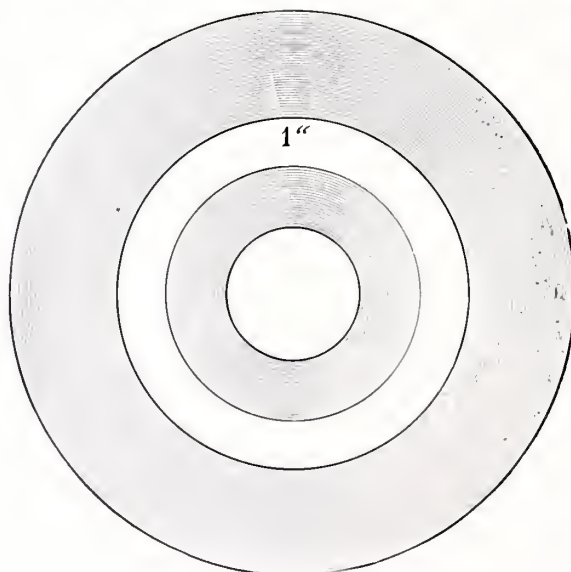


Fig. 12.

2  $\frac{1}{2}$  Inch Double Extra Strong.

We keep in stock a full line of the various sizes of pipe, and will make to order other sizes not specified in this catalogue.

WROUGHT IRON WELDED DOUBLE EXTRA STRONG PIPE.

TABLE OF STANDARD DIMENSIONS.

Diameter.		Thick- ness.	Nearest Wire Gauge.	Circumference.		Transverse Areas.			Length of Pipe per Square Foot of		Nominal Weight per Foot.
Nominal Internal.	Actual External.			External.	Internal.	External.	Internal.	Metal.	External Surface.	Internal Surface.	
Inches.	Inches.	Inches.	No.	Inches.	Inches.	Sq. Inches.	Sq. Inches.	Sq. Inches.	Feet.	Feet.	Pounds.
$\frac{1}{2}$	.84	.298	1	2.639	.766	.554	.047	.507	4.547	15.667	1.7
$\frac{3}{4}$	1.05	.314	1	3.299	1.326	.866	.139	.727	3.637	9.049	2.44
1	1.315	.364	00	4.131	1.844	1.358	.271	1.087	2.904	6.508	3.65
1 $\frac{1}{4}$	1.66	.388	00	5.215	2.78	2.164	.615	1.549	2.304	4.317	5.2
1 $\frac{1}{2}$	1.9	.406	000	5.969	3.418	2.835	.93	1.905	2.01	3.511	6.4
2	2.375	.442	0000	7.461	4.684	4.43	1.744	2.686	1.608	2.561	9.02
2 $\frac{1}{2}$	2.875	.560	$\frac{9}{16}$	9.032	5.513	6.492	2.419	4.073	1.328	2.176	13.68
3	3.5	.608	$\frac{3}{8}$	10.996	7.175	9.621	4.097	5.524	1.091	1.672	18.56
3 $\frac{1}{2}$	4.	.642	$\frac{7}{8}$	12.566	8.533	12.566	5.794	6.772	.955	1.406	22.75
4	4.5	.682	$\frac{11}{16}$	14.137	9.852	15.904	7.724	8.18	.89	1.217	27.48
5	5.563	.75	$\frac{3}{4}$	17.477	12.764	24.306	12.965	11.34	.687	.940	38.12
6	6.625	.875	$\frac{7}{8}$	20.813	15.315	34.472	18.666	15.806	.577	.784	53.11

For List on Pipe see latest Pipe Card.



## LAP-WELDED CHARCOAL IRON BOILER TUBES.

TABLE OF STANDARD DIMENSIONS.

Diameter.		Wire Gauge.	Circumference.		Transverse Areas.		Length Squared.	Normal Weight per Foot.
External.	Internal.		External.	Internal.	External.	Internal.		
Inches.	Inches.	No.	Inches.	Inches.	Sq. Inches.	Sq. Inches.	Feet.	Pounds.
1	.856	13	3.142	2.689	.785	.575	3.819	1.462
1 $\frac{1}{4}$	1.106	13	3.927	3.475	1.227	.961	3.056	3.453
1 $\frac{1}{2}$	1.354	13	4.712	4.191	1.767	1.398	2.547	2.863
1 $\frac{3}{4}$	1.56	13	5.498	4.901	2.405	1.911	2.183	2.448
2	1.81	13	6.283	5.686	3.142	2.573	1.909	2.41
2 $\frac{1}{4}$	2.06	13	7.069	6.472	3.976	3.333	1.698	1.854
2 $\frac{1}{2}$	2.282	12	7.854	7.169	4.909	4.09	1.528	1.674
2 $\frac{3}{4}$	2.532	12	8.639	7.954	5.94	5.035	1.389	1.509
3	2.782	12	9.425	8.74	7.069	6.079	1.273	1.373
3 $\frac{1}{4}$	3.01	11	10.21	9.456	8.296	7.116	1.175	1.26
3 $\frac{1}{2}$	3.26	11	10.996	10.241	9.621	8.347	1.091	1.172
3 $\frac{3}{4}$	3.51	11	11.781	11.027	11.045	9.676	1.018	1.088
4	3.732	10	12.566	11.724	12.566	10.939	.955	1.024

For List on Boiler Tubes see latest Card.

# LAP-WELDED CHARCOAL IRON BOILER TUBES.

## CONTINUED.

TABLE OF STANDARD DIMENSIONS.

Diameter.		Thickness.	Wire Gauge.	Circumference.		Transverse Areas.			Length of Tube per Square Foot of		Nominal Weight per Foot.
External.	Internal.			External.	Internal.	External.	Internal.	Metal.	External Surface.	Internal Surface.	
Inches.	Inches.	inches.	No.	Inches.	Inches.	Sq. Inches.	Sq. Inches.	Sq. Inches.	Feet.	Feet.	Pounds.
4½	4.232	.134	10	14.137	13.295	15.904	14.066	1.838	.849	.902	6.17
5	4.704	.148	9	15.708	14.778	19.635	17.379	2.256	.764	.812	7.58
6	5.67	.165	8	18.85	17.813	28.274	25.249	3.025	.637	.673	10.16
7	6.67	.165	8	21.991	20.954	38.485	34.942	3.543	.546	.573	11.9
8	7.67	.165	8	25.133	24.096	50.266	46.204	4.062	.477	.498	13.65
9	8.64	.18	7	28.274	27.143	63.617	58.629	4.988	.424	.442	16.76
10	9.594	.203	6	31.416	30.14	78.54	72.292	6.248	.382	.398	21.
11	10.56	.22	5	34.558	33.175	95.033	87.583	7.45	.347	.362	25.03
12	11.542	.229	4½	37.699	36.26	113.098	104.629	8.469	.319	.33	28.46
13	12.524	.238	4	40.841	39.345	132.733	123.19	9.543	.294	.305	32.5
14	13.504	.248	3½	43.982	42.424	153.938	143.224	10.714	.27	.283	36.
15	14.482	.259	3	47.124	45.497	176.715	164.72	11.995	.254	.264	40.60
16	15.432	.270	2½	50.26	48.48	201.06	187.04	14.02	.239	.248	45.20

NOTE.—In estimating effective steam-heating or evaporating surface of tubes, the surface in contact with air or gases of combustion, according to manner of application, as whether internal or external, is to be thus taken. For heating liquids by steam, superheating steam, or transferring heat from one liquid or one gas to another, mean surface of tubes is to be computed.

For List on Boiler Tubes see latest Card.

STANDARD SIZES CAST IRON FITTINGS.

Sizes differing from Standard Sizes, if furnished, are to be charged at ten per cent. gross discount higher than Standard Sizes.

BUSHINGS.

$\frac{1}{2}$ X $\frac{1}{4}$	$2\frac{1}{2}$ X $1\frac{1}{2}$	4 X 3	6 X 5	8 X 6
$\frac{3}{4}$ X $\frac{3}{4}$	$2\frac{1}{2}$ X $1\frac{3}{4}$	4 X $2\frac{1}{2}$	6 X $4\frac{1}{2}$	8 X 5
$\frac{3}{4}$ X $\frac{1}{4}$	$2\frac{1}{2}$ X 1	4 X 2	6 X 4	8 X 4
1 X $\frac{1}{2}$	$2\frac{1}{2}$ X $\frac{3}{4}$	4 X $1\frac{1}{2}$	6 X $3\frac{1}{2}$	8 X 3
1 X $\frac{3}{4}$	3 X $2\frac{1}{2}$	4 X $1\frac{1}{4}$	6 X 3	9 X 8
1 X $\frac{1}{4}$	3 X 2	4 X 1	6 X $2\frac{1}{2}$	9 X 7
$1\frac{1}{4}$ X $\frac{3}{4}$	3 X $1\frac{1}{2}$	$4\frac{1}{2}$ X 4	6 X 2	9 X 6
$1\frac{1}{4}$ X $\frac{1}{2}$	3 X $1\frac{1}{4}$	$4\frac{1}{2}$ X $3\frac{1}{2}$	7 X 6	
$1\frac{1}{4}$ X $\frac{3}{8}$	3 X 1	$4\frac{1}{2}$ X 3	7 X 5	10 X 8
$1\frac{1}{2}$ X 1	$3\frac{1}{2}$ X 3	$4\frac{1}{2}$ X $2\frac{1}{2}$	7 X $4\frac{1}{2}$	10 X 6
$1\frac{1}{2}$ X $\frac{3}{4}$	$3\frac{1}{2}$ X $2\frac{1}{2}$	5 X $4\frac{1}{2}$	7 X 4	
$\frac{1}{2}$ X $\frac{1}{2}$	$3\frac{1}{2}$ X 2	5 X 4	7 X $3\frac{1}{2}$	12 X 10
$\frac{1}{2}$ X $\frac{3}{8}$	$3\frac{1}{2}$ X $1\frac{1}{2}$	5 X $3\frac{1}{2}$	7 X 3	12 X 8
$\frac{1}{2}$ X $\frac{1}{4}$	$3\frac{1}{2}$ X $1\frac{1}{4}$	5 X 3	7 X $2\frac{1}{2}$	12 X 6
2 X $1\frac{1}{4}$	$3\frac{1}{2}$ X 1	5 X $2\frac{1}{2}$	7 X 2	
2 X 1	4 X $3\frac{1}{2}$	5 X 2	8 X 7	
2 X $\frac{3}{4}$				
2 X $\frac{1}{2}$				

NOTE—Bushings reducing one size only up to and including  $2\frac{1}{2}$ " are malleable, and will be found, therefore, listed among the malleable fittings.

CAPS.

2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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PLUGS.

$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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LOCKNUTS.

2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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Y BRANCHES.  
REDUCING SIZES TO ORDER.  
Also see page 29.

$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8		
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FLANGE UNIONS.

$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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# STANDARD SIZES CAST IRON FITTINGS.

## CONTINUED.

Sizes differing from Standard Sizes, if furnished, are to be charged at ten per cent. gross discount higher than Standard Sizes.

### ELBOWS.

STRAIGHT SIZES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	2
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### ELBOWS - REDUCING SIZES.

$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{2}$ X $1\frac{1}{4}$	$2\frac{1}{2}$ X 2	$3\frac{1}{2}$ X 3	$4\frac{1}{2}$ X 4
$\frac{3}{4}$ X $\frac{1}{2}$	$1\frac{1}{2}$ X 1	$2\frac{1}{2}$ X $1\frac{1}{2}$		
1 X $\frac{3}{4}$	$1\frac{1}{2}$ X $\frac{3}{4}$	3 X $2\frac{1}{2}$	4 X $3\frac{1}{2}$	5 X 4
1 X $\frac{1}{2}$	2 X $1\frac{1}{2}$	3 X 2	4 X 3	
$1\frac{1}{4}$ X 1	2 X $1\frac{1}{4}$		4 X $2\frac{1}{2}$	6 X 5
$1\frac{1}{4}$ X $\frac{3}{4}$				
$1\frac{1}{4}$ X $\frac{1}{2}$	2 X 1			8 X 6

### 45° ELBOWS.

STRAIGHT SIZES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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### RIGHT AND LEFT ELBOWS.

STRAIGHT SIZES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6				
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### REDUCING COUPLINGS.

$2\frac{1}{2}$ X 2	4 X $3\frac{1}{2}$	6 X 5
$2\frac{1}{2}$ X $1\frac{1}{2}$	4 X 3	6 X 4
	4 X $2\frac{1}{2}$	6 X 3
3 X $2\frac{1}{2}$	4 X 2	
3 X 2		7 X 6
	$4\frac{1}{2}$ X 4	8 X 6
$3\frac{1}{2}$ X 3		
$3\frac{1}{2}$ X $2\frac{1}{2}$	5 X 4	10 X 8
	5 X 3	12 X 10



# STANDARD SIZES CAST IRON FITTINGS.



## CONTINUED.

Sizes differing from Standard Sizes, if furnished, are to be charged at ten per cent. gross discount higher than Standard Sizes.

### CROSSES.

STRAIGHT SIZES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
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### CROSSES—REDUCING SIZES.

Not outlets of a cross are always the same size, and are indicated by the last figure.  
 Thus: A C  is called a  $\frac{3}{4} \times \frac{1}{2}$  Cross. A Cross reducing on the run, thus,  is called a  $2 \times 1\frac{1}{4} \times 1$  Cross.

Reducing on Outlets.	Reducing on Outlets.	Reducing on Run.
$\frac{3}{4} \times \frac{1}{2}$	$3 \times 2\frac{1}{2}$	$1\frac{1}{2} \times 1\frac{1}{4} \times 1$
$1 \times \frac{3}{4}$	$3 \times 2$	$2\frac{1}{2} \times 2 \times 1\frac{1}{2}$
$1 \times \frac{1}{2}$	$3 \times 1\frac{1}{2}$	
$1\frac{1}{4} \times 1$	$3 \times 1\frac{1}{4}$	
$1\frac{1}{4} \times \frac{3}{4}$	$3 \times 1$	
$1\frac{1}{4} \times \frac{1}{2}$	$3 \times \frac{3}{4}$	
$1\frac{1}{2} \times 1\frac{1}{4}$	$3\frac{1}{2} \times 3$	
$1\frac{1}{2} \times 1$	$3\frac{1}{2} \times 2\frac{1}{2}$	
$1\frac{1}{2} \times \frac{3}{4}$	$4 \times 3\frac{1}{2}$	
$1\frac{1}{2} \times \frac{1}{2}$	$4 \times 3$	
$2 \times 1\frac{1}{2}$	$4 \times 2\frac{1}{2}$	
$2 \times 1\frac{1}{4}$	$4 \times 2$	
$2 \times 1$	$5 \times 4$	
$2 \times \frac{3}{4}$	$5 \times 3$	
$2\frac{1}{2} \times 2$	$5 \times 2\frac{1}{2}$	
$2\frac{1}{2} \times 1\frac{1}{2}$	$5 \times 2$	
$2\frac{1}{2} \times 1\frac{1}{4}$	$6 \times 5$	
$2\frac{1}{2} \times 1$	$6 \times 4$	
$2\frac{1}{2} \times \frac{3}{4}$	$6 \times 3$	
	$6 \times 2\frac{1}{2}$	
	$6 \times 2$	

### RETURN BENDS—CLOSE PATTERN.

SIZES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
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### RETURN BENDS—OPEN PATTERN.

SIZES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
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### OFFSETS—TO OFFSET 4, 6 AND 8 INCHES.

SIZES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6		
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# STANDARD SIZES CAST IRON FITTINGS.

## CONTINUED.

Sizes differing from Standard Sizes, if furnished, are to be charged at ten per cent. gross discount higher than Standard Sizes.

### TEES.

STRAIGHT SIZES.

 $\frac{1}{4}$   $\frac{3}{8}$   $\frac{1}{2}$   $\frac{3}{4}$  1  $1\frac{1}{4}$   $1\frac{1}{2}$  2  $2\frac{1}{2}$  3  $3\frac{1}{2}$  4  $4\frac{1}{2}$  5 6 7 8 9 10 12

### TEES — REDUCING SIZES.

NOTE—Tees which reduce on the outlet, thus:

Tees reducing on run, thus:

$$\begin{array}{c} 1\frac{1}{2} \\ \hline 1\frac{1}{2} - 1\frac{1}{2} \\ \hline \end{array}$$

are read,  $1\frac{1}{2} \times 1\frac{1}{2}$ .

$$\begin{array}{c} 1\frac{1}{2} \\ \hline 2 \\ \hline \end{array}$$

are read, 2

Tees with both ends of run the same size, with the outlet larger, thus

$$\begin{array}{c} 2 \\ \hline 1 - 1 \\ \hline \end{array}$$

are known as Bull Head, and are read, 1 x 2.

Reducing on Outlet.	Reducing on Outlet.	Reducing on Run.	Reducing on Run.	Reducing on Run.	Reducing on Run.	Bull Head.
$\frac{1}{8} \times \frac{1}{8}$	4 x $\frac{3}{4}$	$\frac{1}{8} \times \frac{1}{8}$	$1\frac{1}{2} \times \frac{3}{4}$	3 x $2\frac{1}{2}$	4 x 2	$\frac{3}{8} \times \frac{1}{2}$
$\frac{1}{8} \times \frac{1}{4}$	4 x 4	$\frac{1}{8} \times \frac{1}{4}$	$1\frac{1}{2} \times 1$	3 x $2\frac{1}{2}$	4 x 2	$\frac{1}{2} \times 1$
$\frac{1}{8} \times \frac{3}{8}$	4 x $3\frac{1}{2}$	$\frac{1}{8} \times \frac{3}{8}$	$1\frac{1}{2} \times 1$	3 x $2\frac{1}{2}$	4 x 2	$\frac{3}{4} \times 1$
1 x $\frac{1}{8}$	4 x 3	$\frac{1}{8} \times \frac{1}{2}$	$1\frac{1}{2} \times \frac{3}{4}$	3 x $2\frac{1}{2}$	4 x 2	$\frac{1}{2} \times 2$
1 x $\frac{1}{4}$	4 x $2\frac{1}{2}$	$\frac{1}{8} \times \frac{1}{2}$	$1\frac{1}{2} \times 1$	3 x 2	4 x 2	$\frac{3}{4} \times 1\frac{1}{2}$
1 x $\frac{3}{8}$	4 x 2	$\frac{1}{8} \times \frac{1}{2}$	$1\frac{1}{2} \times 1$	3 x $2\frac{1}{2}$	4 x $1\frac{1}{2}$	$\frac{1}{2} \times 1\frac{1}{2}$
$1\frac{1}{4} \times 1$	5 x 4	$\frac{1}{8} \times \frac{1}{2}$	2 x $1\frac{1}{2}$	3 x 2	4 x $1\frac{1}{2}$	$\frac{3}{4} \times 1$
$1\frac{1}{2} \times \frac{1}{4}$	5 x $3\frac{1}{2}$	1 x $\frac{1}{8}$	2 x $1\frac{1}{2}$	3 x 2	4 x 1	1 x 2
$1\frac{1}{2} \times \frac{3}{8}$	5 x 3	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x 2	5 x 4	1 x $1\frac{1}{2}$
$1\frac{1}{2} \times \frac{1}{2}$	5 x $2\frac{1}{2}$	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x 2	5 x 4	1 x $1\frac{1}{4}$
$1\frac{1}{2} \times 1$	5 x 2	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x $1\frac{1}{2}$	5 x 4	1 x 2
$1\frac{1}{2} \times 1$	5 x $1\frac{1}{2}$	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x $1\frac{1}{2}$	5 x 4	$1\frac{1}{4} \times 1\frac{1}{2}$
1 x $1\frac{1}{4}$	5 x $1\frac{1}{4}$	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x $1\frac{1}{2}$	5 x 4	$1\frac{1}{2} \times 2\frac{1}{2}$
2 x $1\frac{1}{2}$	6 x 5	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x $1\frac{1}{2}$	5 x 3	1 x 2
2 x $1\frac{1}{4}$	6 x 4	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x 1	5 x 3	2 x 3
2 x 1	6 x $3\frac{1}{2}$	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x 1	5 x 3	2 x $2\frac{1}{2}$
2 x $\frac{3}{4}$	6 x 3	1 x $\frac{1}{4}$	2 x $1\frac{1}{2}$	3 x 1	5 x 3	2 x 4
2 x $\frac{1}{2}$	6 x $2\frac{1}{2}$	$1\frac{1}{4} \times 1$	2 x $1\frac{1}{2}$	3 x 1	5 x 3	2 x 3
$2\frac{1}{2} \times 2$	6 x 2	$1\frac{1}{4} \times 1$	2 x 1	3 x 1	5 x 2	3 x 4
$2\frac{1}{2} \times 1\frac{1}{2}$	7 x 6	$1\frac{1}{4} \times 1$	2 x 1	3 x 1	5 x 2	3 x $3\frac{1}{2}$
$2\frac{1}{2} \times 1\frac{1}{4}$	7 x 5	$1\frac{1}{4} \times 1$	2 x 1	3 x 1	5 x 2	3 x 4
$2\frac{1}{2} \times 1$	7 x 4	$1\frac{1}{4} \times 1$	2 x 1	3 x 1	5 x 2	4 x 6
$2\frac{1}{2} \times \frac{3}{4}$	7 x 3	$1\frac{1}{4} \times 1$	2 x 1	3 x 1	6 x 5	4 x 5
3 x $2\frac{1}{2}$	8 x 6	$1\frac{1}{4} \times 1$	2 x $\frac{3}{4}$	3 x 1	6 x 5	5 x 6
3 x 2	8 x 5	$1\frac{1}{4} \times 1$	2 x $\frac{3}{4}$	3 x 1	6 x 4	6 x 8
3 x $1\frac{1}{2}$	8 x 4	$1\frac{1}{4} \times 1$	2 x $\frac{3}{4}$	3 x 1	6 x 3	6 x 7
3 x $1\frac{1}{4}$	8 x $3\frac{1}{2}$	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x $3\frac{1}{2}$	6 x $2\frac{1}{2}$	
3 x 1	8 x 3	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x $3\frac{1}{2}$	7 x 6	
3 x $\frac{3}{4}$	8 x $2\frac{1}{2}$	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x $3\frac{1}{2}$	7 x 6	
$3\frac{1}{2} \times 3$	8 x 2	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	7 x 6	
$3\frac{1}{2} \times 2\frac{1}{2}$	9 x 5	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	7 x 5	
$3\frac{1}{2} \times 2$	10 x 8	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	8 x 7	
$3\frac{1}{2} \times 1\frac{1}{2}$	10 x 6	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	8 x 6	
$3\frac{1}{2} \times 1\frac{1}{4}$	10 x 5	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	8 x 6	
$3\frac{1}{2} \times 1$	10 x 4	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	8 x 6	
4 x $3\frac{1}{2}$	12 x 10	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	8 x 5	
4 x 3	12 x 8	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	8 x 5	
4 x $2\frac{1}{2}$	12 x 6	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x 3	8 x 4	
4 x 2	14 x 8	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x $2\frac{1}{2}$	10 x 8	
4 x $1\frac{1}{2}$	14 x 6	$1\frac{1}{4} \times 1$	$2\frac{1}{2} \times 2$	4 x $2\frac{1}{2}$	12 x 8	
4 x $1\frac{1}{4}$		$1\frac{1}{4} \times 1$	3 x $2\frac{1}{2}$	4 x $2\frac{1}{2}$	12 x 8	
4 x 1		$1\frac{1}{4} \times 1$	3 x $2\frac{1}{2}$	4 x $2\frac{1}{2}$		

# CAST IRON FITTINGS.

PLAIN OR GALVANIZED.

TEE.

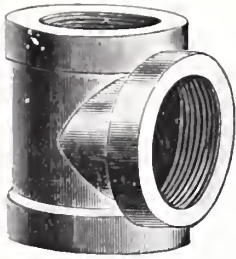


Fig. 13.

REDUCING TEE.

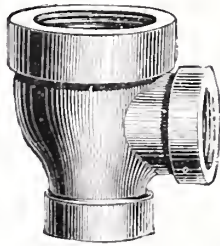


Fig. 14.

TEE REDUCING ON SIDE.

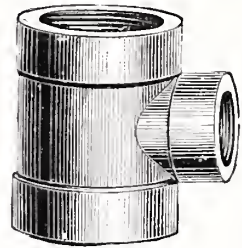


Fig. 15.

TEE SIDE OUTLET.

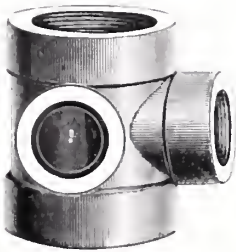


Fig. 16.

BULL HEAD TEE.

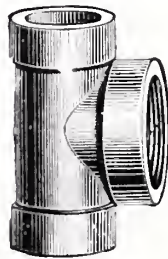


Fig. 17.

Y BRANCH.

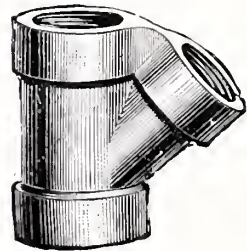


Fig. 18.

FLANGE UNION.

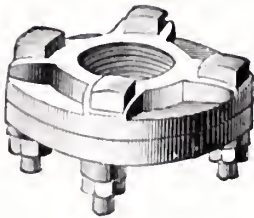


Fig. 19.

PLUG.

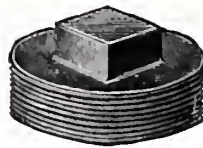


Fig. 20.

SOCKET PLUG.

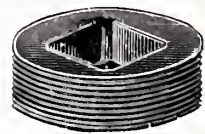


Fig. 21.

For List Prices, see pages 18 and 19.

For List Prices on Galvanized Fittings, see page 21.

# CAST IRON FITTINGS.

PLAIN OR GALVANIZED.

RETURN BEND  
CLOSE.

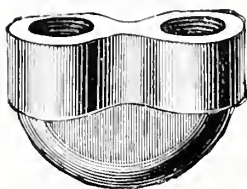


Fig. 22.

RETURN BEND  
OPEN.

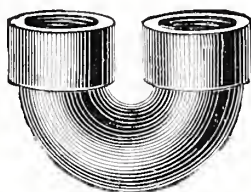


Fig. 23.

RETURN BEND, BACK  
OUTLET.

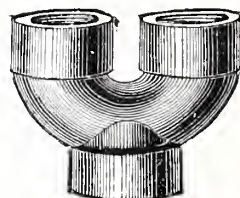


Fig. 24.

RETURN BEND, SIDE  
OUTLET.

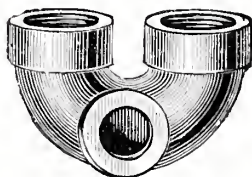


Fig. 25.

OFFSET.

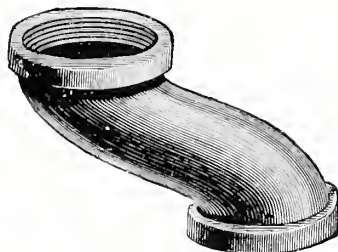


Fig. 26.

LOCKNUT.

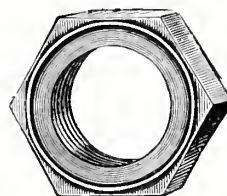


Fig. 27.

BUSHING.

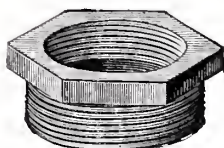


Fig. 28.

REDUCING COUPLING.

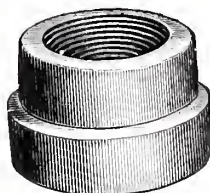


Fig. 29.

CAP.



Fig. 30.

For List Prices, see pages 18 and 19.

For List Prices on Galvanized Fittings, see page 21.



CAST IRON FITTINGS—PLAIN.  
FOR WROUGHT IRON PIPE.

ELBOW.

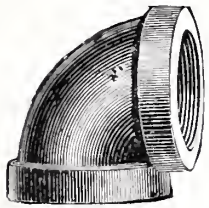


Fig. 31.

REDUCING ELBOW.

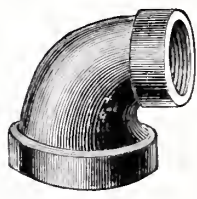


Fig. 32.

45° ELBOW.

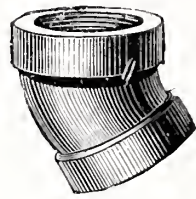


Fig. 33.

List Prices, ¼ inch to 3½ inch inclusive.

SIZE OF PIPE . . . . . INCHES.	¼	⅜	½	¾	1	1¼	1½	2	2½	3	3½
ELBOWS . . . . . Each.	.04	.05	.06	.09	.13	.20	.25	.40	.75	1.10	1.35
“ Reducing . . . . . “	.05	.06	.07	.11	.16	.23	.29	.46	.85	1.25	1.50
“ R. & L. . . . . “	.05	.06	.07	.11	.16	.23	.29	.46	.85	1.25	1.50
“ With Side Outlet . . . . . “	.08	.10	.12	.18	.26	.40	.50	.80	1.50	2.20	2.70
“ 45° . . . . . “	.08	.10	.10	.15	.20	.26	.35	.50	1.30	1.60	1.90
TEES . . . . . “	.06	.07	.09	.13	.20	.30	.38	.60	1.10	1.50	2.00
“ Reducing . . . . . “	.07	.08	.11	.15	.23	.35	.44	.70	1.25	1.75	2.30
“ Side Outlet . . . . . “	...	...	.18	.26	.40	.60	.76	1.20	2.20	3.00	4.00
Y's . . . . . “	...	...	.25	.30	.40	.60	.90	1.25	2.25	3.25	4.50
“ Reducing . . . . . “	...	...	.29	.35	.46	.70	1.35	1.90	2.60	3.75	5.20
CROSSES . . . . . “	.08	.10	.12	.18	.28	.40	.50	.80	1.50	2.20	2.70
“ Reducing . . . . . “	.10	.12	.14	.21	.32	.46	.58	.92	1.70	2.50	3.00
OFFSETS: To set off 4 inch . . . . . “	...	...	...	.45	.70	1.00	1.20	1.80	3.00	4.00	5.00
“ “ “ 6 inch . . . . . “	...	...	...	.67	1.05	1.50	1.80	2.70	4.50	6.00	7.50
“ “ “ 8 inch . . . . . “	...	...	...	.90	1.40	2.00	2.40	3.60	6.00	8.00	10.00
RETURN BENDS: Close Pattern . . . . . “	...	...	.10	.15	.22	.34	.45	.75	1.50	2.25	...
“ “ “ Open . . . . . “	...	...	.15	.20	.30	.48	.68	1.15	1.75	2.75	...
“ “ “ Back Outlet . . . . . “	...	...	...	.30	.40	.60	.90	1.25	2.25	3.25	...
“ “ “ Side . . . . . “	...	...	...	.35	.50	.70	1.00	1.50	...	...	...
“ “ “ Close R. & L., . . . . . “	...	...	.12	.17	.25	.40	.52	.86	1.75	2.60	...
“ “ “ Open . . . . . “	...	...	...	.25	.35	.58	.80	1.35	2.00	3.20	...
“ Distance, cen. to cen., Close, . . . . . “	...	...	1¼	1½	1¾	2¼	2½	3¼	3¾	4½	...
“ “ “ “ Open, . . . . . “	...	...	1¾	2	2½	3	3¾	4	5	6¼	...
UNIONS, FLANGED . . . . . “	...	...	.60	.65	.70	.85	1.15	1.50	1.75	2.25	2.75
“ MALLEABLE . . . . . “	.15	.18	.20	.28	.34	.46	.60	.80	1.50	2.10	3.00
LOCKNUTS . . . . . “	...	...	...	...	...	...	...	.25	.40	.50	.70
CAPS . . . . . “	...	...	...	...	...	...	...	...	.50	.80	1.10
BUSHINGS . . . . . “	...	.05	.06	.07	.09	.13	.17	.27	.42	.60	.80
PLUGS . . . . . “	.03	.03	.04	.05	.06	.10	.13	.20	.35	.50	.75
“ Socket . . . . . “	...	...	...	.07	.09	.11	.15	.22	...	...	...
“ Air . . . . . “	...	...	...	.10	.12	.18	.25	.30	.45	.60	...
“ L. H. or Solid . . . . . “	...	...	.05	.06	.08	.12	.16	.25	...	...	...
COUPLINGS: Reducing and R. & L. . . . . “	...	...	...	...	...	...	...	.50	.75	1.20	1.50
“ W. L. R. H. . . . . “	.05	.06	.07	.10	.13	.17	.21	.28	.40	.60	.80
“ “ R. & L. . . . . “	.07	.08	.11	.15	.20	.25	.30	.50	.85	1.20	1.60

For List of Galvanized Cast Iron Fittings, see page 21.

For Illustrations see pages 16 and 17.

# CAST IRON FITTINGS.

FOR WROUGHT IRON PIPE.

SIDE OUTLET  
ELBOW.

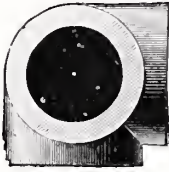


Fig. 34.

CROSS.

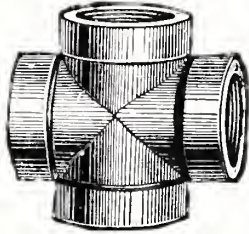


Fig. 35.

REDUCING CROSS.

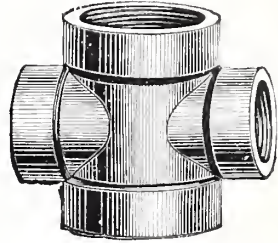


Fig. 36.

List Prices, 4 inches to 12 inches inclusive.

SIZE OF PIPE . . . . . INCHES.	4	4½	5	6	7	8	9	10	12
ELBOWS . . . . . Each.	\$1.80	2.50	2.85	3.90	7.00	10.00	13.00	20.00	30.00
“ Reducing . . . . . “	2.10	3.00	3.25	4.50	8.00	11.50	15.00	23.00	35.00
“ R. & L. . . . . “	2.10	3.00	3.25	4.50	8.00	11.50	15.00	23.00	35.00
“ With Side Outlet . . . . . “	3.60	5.00	5.70	7.80	14.00	20.00	26.00	40.00	60.00
“ 45° . . . . . “	2.50	3.50	4.50	5.50	9.00	12.00	16.00	22.00	33.00
TEES . . . . . “	2.50	3.50	4.00	5.50	10.00	15.00	20.00	25.00	45.00
“ Reducing . . . . . “	2.90	4.00	4.60	6.35	11.50	17.00	23.00	30.00	50.00
“ Side Outlet . . . . . “	5.00	7.00	8.00	11.00	20.00	30.00	40.00	50.00	90.00
Y's . . . . . “	6.00	...	9.00	12.00	17.00	25.00	35.00	55.00	...
“ Reducing . . . . . “	6.90	...	10.35	13.80	19.50	28.75	40.00	60.00	...
CROSSES . . . . . “	3.50	5.00	5.70	7.80	14.00	20.00	26.00	40.00	60.00
“ Reducing . . . . . “	4.00	6.00	6.60	9.00	16.00	23.00	30.00	46.00	70.00
OFFSETS: To set off 4 inches . . . . . “	6.00	...	8.00	10.00	...	...	...	...	...
“ “ “ 6 “ . . . . . “	9.00	...	12.00	15.00	...	...	...	...	...
“ “ “ 8 “ . . . . . “	12.00	...	16.00	20.00	...	...	...	...	...
UNIONS, FLANGED . . . . . “	3.15	4.50	5.00	6.50	8.00	10.00	12.00	15.00	22.00
LOCKNUTS . . . . . “	.95	1.25	1.35	1.90	2.50	3.50	4.00	4.50	6.00
CAPS . . . . . “	1.30	1.60	2.00	2.35	4.00	4.35	6.00	7.25	10.00
BUSHINGS . . . . . “	1.00	1.50	1.85	2.50	3.75	5.50	6.50	7.50	10.00
PLUGS . . . . . “	.85	1.35	1.75	2.40	3.75	5.50	6.50	7.50	10.00
COUPLINGS: Reducing and R. & L. . . . . “	2.00	2.75	3.00	4.00	8.00	10.00	12.00	15.00	22.00
“ W. I. R. H. . . . . “	1.00	1.50	1.65	2.40	3.25	4.25	5.50	7.50	10.00
“ “ R. & L. . . . . “	2.00	...	...	...	...	...	...	...	...

For List of Galvanized Cast Iron Fittings see page 21.

For Illustrations, see pages 16 and 17.

CAST IRON FITTINGS.

EXTRA HEAVY.

For a Working Pressure of 200 Pounds.

ELBOW.

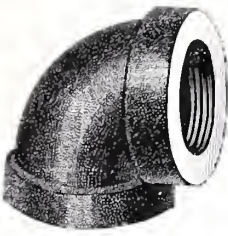


Fig. 37.

45° ELBOW.



Fig. 38.

TEE.

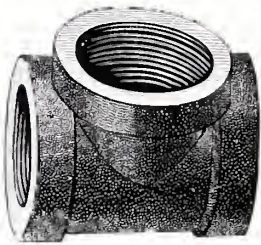


Fig. 39.

CROSS.



Fig. 40.

SIZE . . . . . INCHES.	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6
ELBOWS . . . . . Price	\$0.35	.45	.65	1.15	1.85	2.45	3.15	4.65	5.70	6.75	10.90
" 45° . . . . . "	.45	.55	.75	1.30	2.15	2.95	3.80	5.65	6.75	8.80	13.90
TEES . . . . . "	.55	.70	1.00	1.70	2.60	3.50	4.50	6.50	7.75	9.50	15.50
CROSSES . . . . . "	.70	.90	1.30	2.30	3.70	4.90	6.20	9.20	10.75	13.50	21.80

Write for prices on larger sizes.

ECCENTRICS.

ECCENTRIC TEE.

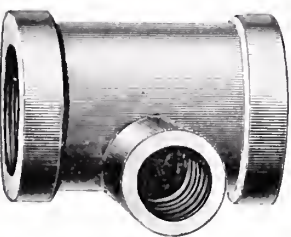


Fig. 41.

OFFSET REDUCING COUPLING.



Fig. 42.

ECCENTRIC TEE.

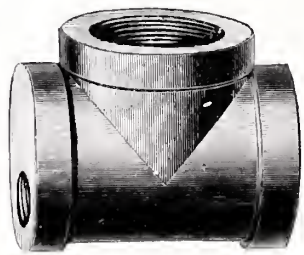


Fig. 43.

OFFSET REDUCING COUPLINGS—Fig. 42.

SIZE . . . . . INCHES.	2X1 1/2	2 1/2X1 1/4	2 1/2X1 1/2	2 1/2X2	3X2	3X2 1/2	3 1/2X3	3 1/2X2 1/2	4X3 1/2	4X3	5X4	6X4
Each. . . . .	\$1.00	1.50	1.50	1.50	2.40	2.40	3.00	3.00	4.00	4.00	6.00	8.00

In ordering Figures 41 and 43, please send sketch, showing position in which fittings are to be used. Prices on application.

## CAST IRON FITTINGS.

## GALVANIZED.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$
ELBOWS . . . . . Each.	.06	.09	.12	.18	.30	.45	.55	.85	1.60	2.35	3.10
" Reducing . . . . . "	.10	.12	.14	.22	.32	.46	.58	.92	1.70	2.50	3.00
" 45° . . . . . "	. . .	.20	.20	.30	.40	.50	.70	1.00	2.60	3.20	4.75
TEES . . . . . "	.08	.13	.17	.25	.40	.60	.85	1.20	2.25	2.85	3.80
" Reducing . . . . . "	.14	.16	.22	.30	.46	.70	.88	1.40	2.50	3.50	4.60
CROSSES . . . . . "	.15	.18	.23	.35	.55	.80	1.00	1.60	3.00	4.25	5.50
" Reducing . . . . . "	.20	.24	.28	.42	.64	.92	1.16	1.84	3.40	5.00	6.00
BUSHINGS . . . . . "	. . .	.06	.07	.10	.14	.21	.30	.44	.60	1.00	1.40
PLUGS . . . . . "	.05	.05	.06	.08	.10	.15	.23	.35	.57	.95	1.35
CAPS . . . . . "	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.60	1.00	1.60	2.20
REDUCERS . . . . . "	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.75	1.20	1.80	2.25
LOCKNUTS . . . . . "	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	.40	.60	.75	1.10
Y's . . . . . "	. . . . .	. . . . .	.50	.60	.80	1.20	1.80	2.50	4.50	6.50	9.75
RETURN BENDS, Close . . . . . "	. . . . .	. . . . .	.20	.30	.44	.68	.90	1.50	3.00	4.50	. . .
" " Open . . . . . "	. . . . .	. . . . .	.30	.40	.60	.96	1.36	2.30	3.50	5.50	. . .
" " Back Outlet . . . . . "	. . . . .	. . . . .	. . . . .	.60	.90	1.30	1.80	2.70	. . . . .	. . . . .	. . .
" " Side Outlet . . . . . "	. . . . .	. . . . .	. . . . .	.70	1.00	1.40	2.00	3.00	. . . . .	. . . . .	. . .
UNIONS, Flanged . . . . . "	. . . . .	. . . . .	1.20	1.30	1.40	1.70	2.30	3.00	3.50	4.50	5.50
COUPLINGS, W. I. R. H. . . . . "	.06	.08	.10	.13	.18	.25	.32	.46	.55	.80	1.05
" W. I. R. & L. . . . . "	.08	.10	.13	.20	.25	.35	.42	.65	1.00	1.50	. . .

## GALVANIZED.

SIZE . . . . . INCHES.	4	4 $\frac{1}{2}$	5	6	7	8	9	10	12
ELBOWS . . . . . Each.	\$4.10	6.00	7.00	11.00	15.00	20.00	26.00	40.00	60.00
" Reducing . . . . . "	4.20	6.00	6.50	9.00	16.00	23.00	30.00	46.00	70.00
" 45° . . . . . "	5.00	7.00	9.00	11.00	18.00	24.00	31.00	44.00	66.00
TEES . . . . . "	5.25	7.00	8.00	12.50	18.00	24.00	31.00	55.00	80.00
" Reducing . . . . . "	5.80	8.00	9.20	12.70	23.00	34.00	44.00	60.00	100.00
CROSSES . . . . . "	7.00	9.00	10.50	16.00	23.00	35.00	40.00	80.00	100.00
" Reducing . . . . . "	8.00	12.00	13.20	18.00	32.00	46.00	60.00	92.00	140.00
BUSHINGS . . . . . "	1.50	2.25	3.00	4.00	6.00	8.00	9.00	12.00	15.00
PLUGS . . . . . "	1.60	2.35	3.50	4.65	7.50	11.00	13.00	15.00	20.00
CAPS . . . . . "	2.60	3.20	4.00	4.70	8.00	8.70	11.50	14.50	20.00
REDUCERS . . . . . "	3.00	4.50	5.00	6.00	12.00	15.00	18.00	23.00	33.00
LOCKNUTS . . . . . "	1.50	2.00	2.20	3.00	4.00	5.50	6.00	7.00	9.00
Y's . . . . . "	12.00	. . .	18.00	24.00	34.00	50.00	70.00	. . . . .	. . . . .
UNIONS, Flanged . . . . . "	6.30	9.00	10.00	13.00	16.00	20.00	24.00	30.00	44.00
COUPLINGS, W. I. R. H. . . . . "	1.40	2.00	2.25	3.25	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .



# STANDARD SIZES WROUGHT IRON NIPPLES.

CLOSE NIPPLE.



Fig. 44.

SPACE NIPPLE.



Fig. 45.

SIZE . . INCHES	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8	9	10	12
Close or short . .	.05	.05	.06	.07	.09	.10	.14	.17	.25	.56	.75	1.00	1.25	1.75	2.00	2.75	4.00	5.75	7.00	8.50	12.00
Assorted, long . .	.07	.07	.09	.10	.11	.15	.20	.25	.35	.75	.95	1.25	1.60	2.25	2.60	3.60	5.00	7.00	8.50	12.00	16.00
When exact lengths are ordered.																					
5 in. long . .	.16	.16	.17	.18	.20	.22	.29	.36	.44	.80	1.00	1.25	1.60	2.25	2.60	3.60	5.00	7.00	8.50	12.00	16.00
6 " . .	.17	.17	.18	.19	.21	.24	.31	.38	.49	.80	1.00	1.25	1.60	2.25	2.60	3.60	5.00	7.00	8.50	12.00	16.00
7 " . .	.18	.18	.19	.20	.22	.27	.33	.40	.54	.85	1.06	1.38	1.75	2.35	2.75	3.75	4.45	6.30	7.40	9.00	13.00
8 " . .	.19	.19	.20	.21	.23	.29	.35	.42	.59	.91	1.15	1.50	1.92	2.45	2.95	3.90	4.70	6.60	7.80	9.60	14.25
9 " . .	.20	.20	.21	.22	.25	.31	.38	.45	.64	1.00	1.24	1.62	2.10	2.56	3.20	4.15	5.10	6.90	8.20	10.20	15.50
10 " . .	.21	.21	.22	.23	.27	.33	.40	.48	.69	1.10	1.34	1.74	2.30	2.75	3.45	4.40	5.50	7.20	8.80	11.00	16.75
11 " . .	.22	.22	.23	.25	.29	.36	.43	.51	.74	1.20	1.44	1.86	2.50	2.94	3.80	4.65	5.90	7.50	9.40	11.80	18.00
12 " . .	.23	.23	.25	.27	.31	.40	.46	.55	.79	1.30	1.55	2.00	2.70	3.15	4.20	4.90	6.30	7.90	10.00	12.60	19.25
Rt. and left, short . .	.10	.10	.12	.15	.18	.24	.30	.36	.40	1.00	1.25	1.50	1.75	2.25	2.60	3.60	5.00	7.00	8.50	12.00	16.00
Rt. and left, long . .	.12	.14	.16	.20	.24	.35	.46	.60	1.30	1.60	2.00	2.40	3.00	3.60	4.60	5.60	7.20	9.00	11.00	14.00	18.00
Right and left.																					
4 in. long . .	.16	.18	.20	.24	.29	.40	.51	.66	.89	1.45	1.80	2.37	2.90	3.60	4.40	5.40	7.00	8.80	11.00	14.00	18.00
5 " . .	.21	.22	.24	.29	.34	.44	.57	.69	.91	1.25	1.65	2.10	2.60	3.30	4.10	5.10	6.60	8.40	10.40	13.00	17.00
6 " . .	.22	.23	.25	.30	.33	.46	.59	.74	1.25	1.65	2.10	2.60	3.30	4.10	5.10	6.60	8.40	10.40	13.00	17.00	22.00
7 " . .	.23	.24	.26	.31	.36	.48	.61	.79	1.30	1.71	2.10	2.60	3.30	4.10	5.10	6.60	8.40	10.40	13.00	17.00	22.00
8 " . .	.24	.25	.27	.32	.38	.50	.63	.84	1.36	1.80	2.25	2.72	3.40	4.20	5.20	6.60	8.40	10.40	13.00	17.00	22.00
9 " . .	.25	.26	.28	.34	.40	.53	.66	.89	1.45	1.89	2.37	2.90	3.60	4.40	5.40	7.00	8.80	11.00	14.00	18.00	24.00
10 " . .	.26	.27	.29	.36	.42	.55	.69	.94	1.55	1.99	2.49	3.10	3.80	4.60	5.60	7.20	9.00	11.00	14.00	18.00	24.00
11 " . .	.27	.28	.31	.38	.45	.58	.73	.99	1.65	2.09	2.61	3.30	4.00	4.80	5.80	7.40	9.40	11.60	14.60	19.00	25.00
12 " . .	.28	.30	.33	.40	.49	.61	.76	1.04	1.75	2.20	2.75	3.50	4.20	5.00	6.00	7.60	9.60	11.80	15.00	19.00	25.00
Galvanized, short . .	.07	.08	.09	.11	.13	.17	.23	.32	.65	1.00	1.25	1.45	1.90	2.40	3.50	4.60	6.00	7.60	9.40	11.60	15.00
Galvanized, long . .	.09	.11	.13	.16	.19	.24	.31	.40	.85	1.20	1.50	1.90	2.40	3.00	4.40	5.60	7.20	9.00	11.00	14.00	18.00
" 4 in. long . .	.13	.15	.17	.21	.26	.33	.42	.49	.90	1.25	1.65	2.10	2.60	3.30	4.10	5.10	6.60	8.40	10.40	13.00	17.00
" 5 " . .	.18	.19	.21	.25	.26	.33	.42	.49	.90	1.25	1.65	2.10	2.60	3.30	4.10	5.10	6.60	8.40	10.40	13.00	17.00
" 6 " . .	.19	.20	.22	.26	.28	.35	.44	.54	.90	1.25	1.65	2.10	2.60	3.30	4.10	5.10	6.60	8.40	10.40	13.00	17.00
" 7 " . .	.20	.21	.23	.27	.31	.37	.46	.59	.95	1.31	1.65	2.10	2.60	3.30	4.10	5.10	6.60	8.40	10.40	13.00	17.00
" 8 " . .	.21	.22	.24	.28	.33	.39	.48	.64	1.01	1.40	1.75	2.22	2.60	3.35	4.70	6.00	7.60	9.40	11.60	14.60	19.00
" 9 " . .	.22	.23	.25	.30	.35	.42	.51	.69	1.10	1.49	1.87	2.40	2.71	3.60	4.95	6.30	8.00	10.00	12.00	15.00	20.00
" 10 " . .	.23	.24	.26	.32	.37	.44	.54	.74	1.20	1.59	1.99	2.60	2.90	3.85	5.20	6.60	8.40	10.40	13.00	17.00	22.00
" 11 " . .	.24	.25	.28	.34	.40	.47	.57	.79	1.30	1.69	2.11	2.80	3.09	4.20	5.45	6.80	8.60	10.60	13.00	17.00	22.00
" 12 " . .	.25	.27	.30	.36	.44	.50	.61	.84	1.40	1.80	2.25	3.00	3.30	4.60	5.70	7.20	9.00	11.00	14.00	18.00	24.00

Assorted long nipples will always be sent if not otherwise ordered. Nipples with threads longer than standard, at special prices.

Extra heavy nipples twice above List.

Double extra heavy nipples four times above List.

LOCKNUT NIPPLE.



Fig. 46.

## LOCKNUT NIPPLES—PLAIN.

NOT OVER 6 INCHES LONG.

SIZE . .	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	
Price . .	.80	.18	.20	.22	.25	.30	.40	.50	.80	1.25	1.50



# CAST IRON FLANGES.

FLANGE.

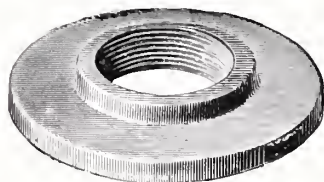


Fig. 47.

FLOOR FLANGE.



Fig. 48.

Size of Pipe.	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	6	7	8	10	12	14	16
Outside Diameter of Flanges.																				
3 In.	.14																			
3 1/2 "		.17	.18																	
4 "		.20	.21	.22	.25															
4 1/2 "		.26	.28	.28	.30	.31														
5 "		.31	.33	.33	.35	.36	.38													
5 1/2 "		.40	.40	.42	.42	.42	.45	.45												
6 "		.50	.50	.52	.52	.52	.55	.55	.55											
6 1/2 "		.55	.60	.62	.62	.62	.65	.65	.65	.70										
7 "		.65	.68	.72	.72	.72	.75	.75	.75	.75										
7 1/2 "		.75	.80	.80	.80	.80	.80	.80	.84	.87	.87									
8 "		.85	.90	.90	.90	.90	.90	.90	.96	1.00	1.04									
8 1/2 "		.95	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.13	1.22									
9 "				1.10	1.10	1.10	1.15	1.15	1.22	1.26	1.40	1.55	1.65							
9 1/2 "					1.20	1.20	1.25	1.30	1.37	1.55	1.58	1.70	1.80	2.20						
10 "					1.40	1.40	1.45	1.45	1.52	1.75	1.76	1.90	2.00	2.40						
11 "							1.90	1.90	1.90	1.95	2.16	2.32	2.40	2.80	2.80					
12 "								2.25	2.35	2.50	2.56	2.76	2.80	3.20	3.75	4.00				
13 "									2.60	2.85	2.85	3.00	3.05	3.45	4.10	4.50				
14 "										3.25	3.50	3.50	3.75	3.75	3.75	4.50	5.00			
15 "																5.00	5.60	6.60		
16 "																5.50	6.25	7.25	9.00	
17 "																6.25	6.90	8.00	9.75	
18 "																	7.50	9.25	10.75	
19 "																		10.00	12.00	
20 "																		11.00	13.50	15.00
21 "																			16.50	
23 "																				25.00
24 "																				28.00

Extra Heavy Flanges, double price of above.



Fig. 49.

## CIRCULAR FLANGES.

CAST IRON.

SIZE OF PIPE . . . . . INCHES.	1 1/2	2	2 1/2	3	4	5	6	7	8
DIAMETER OF FLANGE . . . . . "	6	7	8	9	9	11	12	13	14

These Flanges being made to order, it is always necessary to give the circle they are to fit. Prices on application.



Fig. 50.

## BLIND FLANGES.

CAST IRON.

16 Inches and under.

These Flanges made to order only.

FITTINGS FOR IRON PIPE.

WROUGHT IRON COUPLINGS.



Fig. 51.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Right Hand, plain, each . . .	\$0.05	.05	.06	.07	.10	.13	.17	.21	.28	.40	.60
Right and Left, plain, each . .	.07	.07	.08	.11	.15	.20	.25	.30	.50	.85	1.20
Right Hand, Galvanized, each . .	.06	.06	.08	.10	.13	.18	.25	.32	.40	.55	.80

SIZE . . . . . INCHES.	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	9	10	12
Right Hand, plain, each	\$0.80	1.00	1.50	1.65	2.40	3.25	4.25	5.50	7.50	10.00
Right Hand, Galvanized, . . .	1.05	1.40	2.00	2.25	3.25	. .	. .	. .	. .	. .

WROUGHT IRON HYDRAULIC COUPLINGS.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5
Each . . . . .	\$0.75	.80	1.05	1.20	1.40	1.75	2.50	3.50	4.50	5.50

PATENT WROUGHT IRON SLEEVE COUPLINGS.

To those who have had trouble with pipe breaking from the use of the ordinary W. I. couplings, we recommend this Sleeve coupling as a most valuable improvement.



Fig. 52.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Plain . . . . .	\$0.10	.12	.15	.25	.30	.40	.60	.80	1.30	1.50	2.00	2.40	2.80
Right and Left, Galvanized . . .	.15	.18	.23	.38	.45	.70	1.20	1.60	2.60	3.00	. .	. .	. .

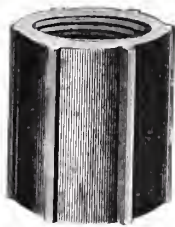


Fig. 53.

MALLEABLE IRON COUPLINGS.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Right Hand, plain, each . . . . .	\$0.03	.04	.07	.10	.14	.20	.25	.35
Right Hand, Galvanized, each . . .	.05	.07	.10	.17	.23	.30	.40	.55
Right and Left, plain, each . . . .	.04	.05	.08	.12	.16	.25	.36	.52
Right and Left, Galvanized, each . .	.06	.08	.10	.17	.25	.35	.55	.75

WROUGHT IRON SERVICE BENDS.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Plain, each . . . . .	\$0.28	.37	.56	.77	1.12	1.65
Galvanized, each . . . . .	.36	.45	.70	.90	1.30	2.00

# UNIONS.

## MALLEABLE IRON UNION.

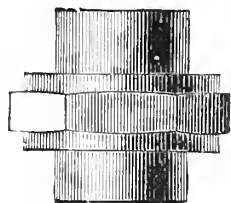


Fig. 54.

SIZE . . . . . INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Plain, each . . . . .	\$0.15	.18	.20	.28	.34	.46	.60	.80	1.50	2.10	3.00	4.00
Galvanized, each . . . . .	.20	.24	.27	.37	.50	.70	.90	1.20	2.25	2.90	4.50	5.60

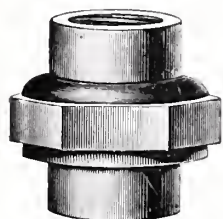


Fig. 55.

## THE AMERICAN UNION.

A glance at the "section" cut—"A"—will show the bed of anti-corrosive metal, and the manner in which the joint is made.

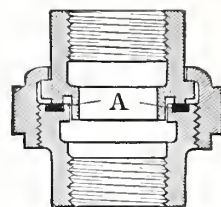


Fig. 56.

## PRICE-LIST—REVISED MARCH 20, 1888.

SIZE OF PIPE . . . . . INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Plain, each . . . . .	\$0.20	.24	.28	.35	.40	.56	.80	.95	2.00	2.75
Galvanized, each . . . . .	.24	.28	.35	.46	.55	.78	1.12	1.35	2.90	3.75



Fig. 57.

## CRANE UNION.

SIZE . . . . . INCHES	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Plain, each . . . . .	\$0.28	.35	.40	.56	.80	.95
Galvanized, each . . . . .	.35	.46	.55	.78	1.12	1.35

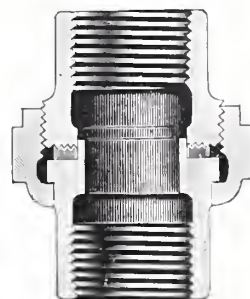


Fig. 58.

## KEYSTONE UNION.

### SIZES AND PRICES.

SIZE . . . . . INCHES	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Plain . . . . .	\$0.20	.24	.28	.35	.40	.56	.80	.95
Galvanized . . . . .	.24	.28	.35	.46	.55	.78	1.12	1.35

# STANDARD FLANGED FITTINGS.

TEE.

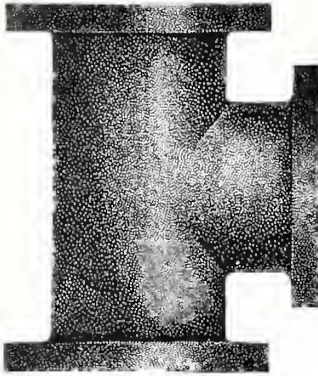


Fig. 61.

REDUCING TEE ON RUN.

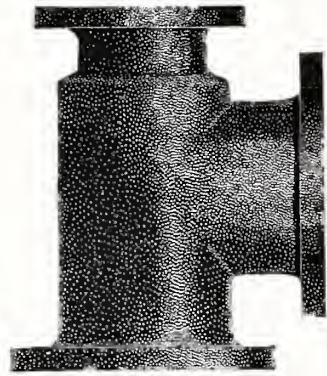


Fig. 62.

REDUCING TEE ON OUTLET.

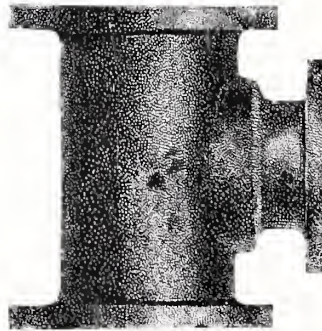


Fig. 63.

CROSS.

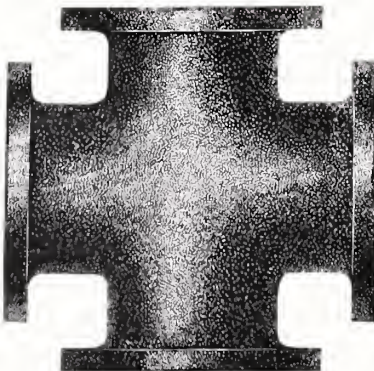


Fig. 64.

Y BRANCH.

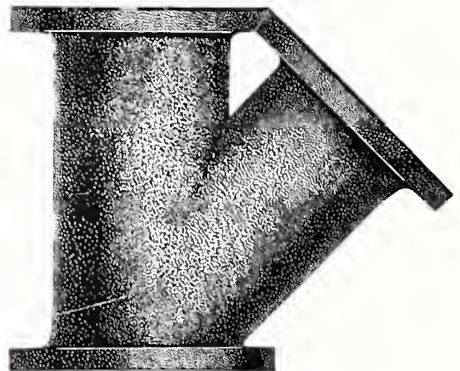


Fig. 65.

For List see opposite page.



## STANDARD FLANGED FITTINGS.

SIZE, INCHES.	TEE, Fig. 61.		REDUCING TEE, Figs. 62, 63.		CROSSES, Fig. 64.		Y BRANCH, Fig. 65.	
	With Faced Flanges.	With Faced and Drilled Flanges.	With Faced Flanges.	With Faced and Drilled Flanges.	With Faced Flanges.	With Faced and Drilled Flanges.	With Faced Flanges.	With Faced and Drilled Flanges.
2 . . . . .	86,00	7,00	. . .	. . .	8,00	9,50	. . .	. . .
3 . . . . .	7,00	8,00	. . .	. . .	10,00	11,50	. . .	. . .
4 . . . . .	8,00	9,50	9,00	10,50	11,00	13,00	11,00	13,00
4½ . . . . .	9,50	11,00	11,00	12,50	13,00	15,00	13,00	15,00
5 . . . . .	11,00	12,50	12,50	14,00	15,00	17,00	15,00	17,00
6 . . . . .	15,00	17,00	17,00	19,00	18,00	21,00	18,00	21,00
7 . . . . .	20,00	23,00	23,00	26,00	25,00	29,00	25,00	29,00
8 . . . . .	26,00	29,00	29,50	32,50	32,00	36,00	32,00	36,00
9 . . . . .	32,00	36,00	36,50	40,50	40,00	45,00	40,00	45,00
10 . . . . .	38,00	42,00	44,00	48,00	50,00	55,00	50,00	55,00
12 . . . . .	50,00	54,00	57,00	61,00	65,00	72,00	65,00	72,00
14 . . . . .	75,00	83,00	85,00	93,00	95,00	105,00	95,00	105,00
15 . . . . .	90,00	98,00	100,00	108,00	115,00	125,00	115,00	125,00
16 . . . . .	105,00	113,00	120,00	128,00	135,00	145,00	135,00	145,00
18 . . . . .	135,00	150,00	150,00	165,00	175,00	195,00	175,00	195,00
20 . . . . .	165,00	180,00	185,00	200,00	210,00	230,00	. . .	. . .
22 . . . . .	200,00	225,00	230,00	255,00	250,00	285,00	. . .	. . .
24 . . . . .	260,00	300,00	300,00	340,00	325,00	375,00	. . .	. . .

## DIMENSIONS OF FLANGED FITTINGS.

SIZE . . . INCHES.	2	3	4	4½	5	6	7	8	9	10	12	14	15	16	18	20	22	24
Diameter of Flange	6½	8	9	9½	10	11	13	14	15	16	19	21	22	24	25	27	30	32
Centre to face . .	4½	5½	6	6¾	7	7½	8½	9½	10¾	11½	12¾	13¾	14½	15½	16½	18	20	22
Face to face . . .	9	11	12	12½	14	15	17	19	21½	23	25½	26½	29	30½	33	36	40	44
“ “ “ Y . . . .			12	14	15½	18½	19¾	22½	24	27	28½	31½	32	35	.	.	.	.

NOTE.—Flanged Fittings will always be furnished *Faced only*, unless otherwise ordered.

Reducing Fittings being *made to order*, we are unable to give dimensions.

Reducing Crosses and Y's made to order at an advance of 12½ per cent. net.



LONG TURN FITTINGS.  
CAST IRON SCREWED.

ELBOW.



Fig. 66.

DOUBLE BRANCH ELL.



Fig. 67.

SIZE . . . . .	INCHES.	1	1¼	1½	2	2½	3	3½	4	4½
Fig. 66. Elbow . . . . .		\$0.25	.35	.45	.60	1.00	1.50	2.00	2.50	3.50
Fig. 67. Double Branch Ell . . . . .		.38	.52	.68	.90	1.50	2.25	3.00	3.75	5.25
SIZE . . . . .	INCHES.	5	6	7	8	9	10	12	14	
Fig. 66. Elbow . . . . .		\$4.50	6.50	10.00	14.00	17.00	20.00	30.00	45.00	
Fig. 67. Double Branch Ell . . . . .		6.75	9.75	15.00	21.00	25.00	30.00	45.00	67.00	

WATER TEE.



Fig. 68.

CROSS.



Fig. 69.

SIZE . . . . .	INCHES.	1	1¼	1½	2	2½	3	3½	4	4½
Fig. 68. Tee . . . . .		\$0.38	.52	.68	.90	1.50	2.25	3.00	3.75	5.25
Fig. 69. Cross . . . . .		. .	. .	.90	1.20	2.00	3.00	4.00	5.00	. .
SIZE . . . . .	INCHES.	5	6	7	8	9	10	12	14	
Fig. 68. Tee . . . . .		\$6.75	9.75	15.00	21.00	25.00	30.00	45.00	67.00	
Fig. 69. Cross . . . . .		9.00	13.00	20.00	28.00	34.00	40.00	60.00	. .	

LONG TURN FITTINGS.  
CAST IRON SCREWED.

REDUCING TEE.



Fig. 70.

SIZE . . . . . INCHES.	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8
Fig. 70. Reducing Tee . . .	80.58	.80	1.00	1.35	2.25	3.50	4.50	5.75	10.00	15.00	31.00

REDUCING TEE.



Fig. 71.

Fig. 71. REDUCING TEE.

SIZE . . . . . INCHES.	3/4 X 3/4 X 1	1 1/4 X 1 1/4 X 1 1/2	2 X 2 X 2 1/2	3 X 3 X 4
" . . . . . "	. . . . .	. . . . .	. . . . .	4 X 4 X 5
" . . . . . "	1 X 1 X 1 1/4	1 1/2 X 1 1/2 X 2	2 1/2 X 2 1/2 X 3	5 X 5 X 6

REDUCING Y.



Fig. 72.

Fig. 72. REDUCING Y.

SIZE INCHES.	SIZE INCHES.	SIZE INCHES.	SIZE INCHES.	SIZE INCHES.	SIZE INCHES.
1 X 1 X 1	2 X 2 X 1 1/4	2 1/2 X 2 1/2 X 1 1/2	2 1/2 X 1 1/4 X 1 1/2	3 X 2 1/2 X 2	3 1/2 X 3 X 3
1 1/4 X 1 1/4 X 1	2 X 2 X 1	2 1/2 X 2 1/2 X 1 1/4	2 1/2 X 1 1/4 X 1 1/4	3 X 2 1/2 X 1 1/2	3 1/2 X 3 X 2
1 1/4 X 1 1/4 X 1 1/4	2 X 1 1/2 X 2	2 1/2 X 2 1/2 X 1	2 1/2 X 1 1/4 X 1	3 X 2 1/2 X 1 1/4	3 1/2 X 2 1/2 X 3
1 1/4 X 1 X 1 1/4	2 X 1 1/2 X 1 1/2	2 1/2 X 2 X 2 1/2	2 1/2 X 1 X 2 1/2	3 X 2 1/2 X 1	3 1/2 X 2 1/2 X 2
1 1/4 X 1 X 1	2 X 1 1/2 X 1 1/4	2 1/2 X 2 X 2	2 1/2 X 1 X 2	3 X 2 X 3	4 X 4 X 3
1 1/2 X 1 1/2 X 1 1/4	2 X 1 1/2 X 1	2 1/2 X 2 X 1 1/2	2 1/2 X 1 X 1 1/2	3 X 2 X 2 1/2	4 X 4 X 2
1 1/2 X 1 1/4 X 1 1/4	2 X 1 1/4 X 1 1/4	2 1/2 X 2 X 1 1/4	3 X 3 X 3	3 X 2 X 2	4 X 3 1/2 X 3
1 1/2 X 1 1/4 X 1 1/2	2 X 1 1/4 X 1 1/2	2 1/2 X 2 X 1	3 X 3 X 2 1/2	3 X 2 X 1 1/2	4 X 3 X 3
1 1/2 X 1 X 1 1/4	2 X 1 1/4 X 1	2 1/2 X 1 1/2 X 2 1/2	3 X 3 X 2	3 X 1 1/2 X 3	4 X 3 X 2
1 1/2 X 1 1/4 X 1	2 X 1 X 1 1/2	2 1/2 X 1 1/2 X 2	3 X 3 X 1 1/2	3 X 1 1/2 X 2 1/2	4 X 3 X 1 1/2
1 1/2 X 1 X 1	2 X 1 X 1 1/4	2 1/2 X 1 1/2 X 1 1/2	3 X 3 X 1 1/4	3 X 1 1/2 X 2	4 X 2 1/2 X 2
1 1/2 X 1 1/2 X 1 1/2	2 X 1 X 1	2 1/2 X 1 1/2 X 1 1/4	3 X 3 X 1	3 X 1 1/4 X 3	4 X 2 X 2 1/2
2 X 2 X 2	2 1/2 X 2 1/2 X 2 1/2	2 1/2 X 1 1/2 X 1	3 X 2 1/2 X 3	3 1/2 X 3 1/2 X 3	4 X 2 X 2
2 X 2 X 1 1/2	2 1/2 X 2 1/2 X 2	2 1/2 X 1 1/4 X 2	3 X 2 1/2 X 2 1/2	3 1/2 X 3 1/2 X 2	. . . . .

# LONG TURNED FLANGED FITTINGS.

SINGLE LONG TURN TEE.



Fig. 73.

DOUBLE LONG TURN TEE.



Fig. 74.

SINGLE LONG TURN TEE,  
REDUCING ON RUN.

Fig. 75.

SINGLE LONG TURN TEE,  
REDUCING ON SIDE.

Fig. 76.

ELBOW.



Fig. 77.

LONG TURN CROSS.

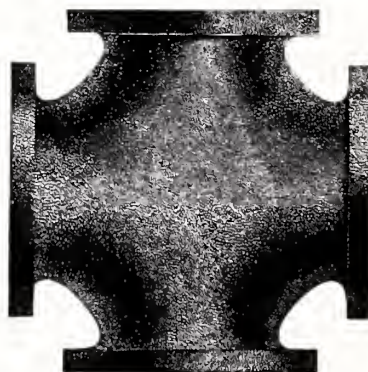


Fig. 78.

For List see opposite page.



# LONG TURNED FLANGED FITTINGS.

45° ELBOW.



Fig. 79.

SIZE. INCHES.	ELBOW. Fig. 77.		45° ELBOW. Fig. 79.		TEE. Figs. 73, 74.		TEE REDUCING. Figs. 75, 76.		CROSSES. Fig. 78.	
	With Faced Flanges.	With Faced & Drilled Flanges.	With Faced Flanges.	With Faced and Drilled Flanges.	With Faced Flanges.	With Faced and Drilled Flanges.	With Faced Flanges.	With Faced and Drilled Flanges.	With Faced Flanges.	With Faced and Drilled Flanges.
2	\$4.00	4.75	4.50	5.25	7.00	8.00	. . .	. . .	. . .	. . .
3	5.00	5.75	5.50	6.25	8.00	9.00	. . .	. . .	. . .	. . .
4	5.50	6.50	6.50	7.50	9.50	10.50	10.50	12.00	13.50	15.50
4½	6.50	7.50	7.50	8.50	11.00	12.50	12.00	13.50	18.75	20.75
5	7.50	8.50	9.00	10.00	12.50	14.00	14.00	15.50	25.50	28.50
6	9.00	10.50	11.00	12.50	17.00	19.00	19.00	21.00	34.50	38.50
7	12.00	14.00	14.00	16.00	23.00	26.00	25.50	28.50	44.25	48.25
8	16.00	18.00	19.00	21.00	29.50	32.50	33.00	36.00	54.75	59.75
9	20.00	22.50	24.00	26.50	36.50	40.50	41.00	45.00	66.00	71.00
10	26.00	28.50	30.00	32.50	44.00	48.00	49.00	53.00	85.50	92.50
12	35.00	38.00	40.00	43.00	57.00	61.00	63.00	67.00	127.50	137.50
14	50.00	55.00	55.00	60.00	85.00	93.00	94.00	102.00	150.00	160.00
15	60.00	65.00	65.00	70.00	100.00	108.00	110.00	118.00	180.00	190.00
16	70.00	75.00	80.00	85.00	120.00	128.00	132.00	140.00	225.00	245.00
18	90.00	100.00	100.00	110.00	150.00	165.00	170.00	185.00	. . .	. . .
20	110.00	120.00	120.00	130.00	185.00	200.00	205.00	220.00	. . .	. . .
22	135.00	150.00	150.00	170.00	225.00	250.00	245.00	270.00	. . .	. . .
24	175.00	200.00	200.00	240.00	285.00	325.00	315.00	355.00	. . .	. . .

NOTE—Flanged Fittings will always be furnished *Faced only*, unless otherwise ordered. Reducing Fittings being *made to order* we are unable to give dimensions.

Dimensions of Flanged Fittings, see page 27.

REVISED CLASSIFICATION  
MALLEABLE IRON, GAS, WATER AND  
STEAM FITTINGS.

APRIL 5th, 1893.

CLASS A.

Elbows,  $\frac{1}{4}$ ,  $\frac{1}{2}$  x  $\frac{1}{4}$ ,  $\frac{3}{4}$  x  $\frac{1}{4}$ .  
Tees,  $\frac{1}{4}$ ,  $\frac{1}{2}$  x  $\frac{1}{4}$ ,  $\frac{1}{2}$  x  $\frac{1}{2}$ ,  $\frac{3}{4}$  x  $\frac{1}{4}$ .  
Reducing Couplings,  $\frac{1}{4}$  x  $\frac{1}{4}$ ,  $\frac{3}{4}$  x  $\frac{1}{4}$ .  
Rod Couplings.  
R. & L. Right Couplings,  $\frac{1}{4}$  in.

CLASS B.

Elbows and Tees,  $\frac{1}{4}$  to  $\frac{1}{2}$  in. inclusive.  
Elbows, Side Outlet, all sizes.  
Elbows, 45°, all sizes.  
Service or Street Ells, to  $\frac{3}{4}$  in. inclusive.  
Crosses, to 1 in. inclusive.  
Drop Ells and Tees, all sizes.  
Four-way Tees, all sizes.  
Plugs, Caps, and Locknuts, to 1 in. inclusive.  
Reducing Couplings,  $\frac{3}{4}$  x  $\frac{1}{4}$  to 1 in. inclusive.  
R. & L. Couplings,  $\frac{1}{4}$  to  $\frac{3}{4}$  inclusive.  
Extension pieces, all sizes.  
R. & L. Fittings, to 1 in. inclusive.  
R. H. Couplings,  $\frac{1}{4}$  to  $\frac{3}{4}$  inclusive.  
Waste Nuts.

Chandelier Hooks.  
Offsets.  
Return Bends, to 1 in. inclusive.  
Wall Plates.

CLASS C.

Any fittings, in this class, that have smaller outlets than  $\frac{3}{4}$  to be classed "B."  
Elbows and Tees,  $\frac{3}{4}$  to 1 in. inclusive.  
Crosses,  $1\frac{1}{4}$  and larger.  
Service or Street Ells, 1 and larger.  
Plugs, Caps, and Locknuts,  $1\frac{1}{4}$  and larger.  
Reducing Couplings,  $1\frac{1}{4}$  and larger.  
R. & L. Fitting,  $1\frac{1}{4}$  and larger  
R. H. Couplings, 1 in. and  $1\frac{1}{4}$  in.  
Return Bends,  $1\frac{1}{4}$  in. and larger.  
R. & L. Couplings, 1 in. and larger.

CLASS D.

Any fittings, in this class, that have outlets smaller than 1 in. to be classed as "C."  
Elbows and Tees,  $1\frac{1}{4}$  and larger.  
Right Hand Couplings,  $1\frac{1}{2}$  and 2 in.

Standard List of Galvanized and Enameled Malleable Fittings.

Adopted by Manufacturers' Association, May 19, 1886.

ELBOWS.  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{2}$  x  $\frac{3}{4}$ ,  $\frac{3}{4}$ ,  $\frac{3}{4}$  x  $\frac{1}{2}$ , 1, 1 x  $\frac{3}{4}$ ,  $1\frac{1}{4}$ ,  $1\frac{1}{4}$  x 1,  $1\frac{1}{2}$ ,  $1\frac{1}{2}$  x  $1\frac{1}{4}$ , 2, 2 x  $1\frac{1}{2}$ ,  $2\frac{1}{2}$ , 3,  $3\frac{1}{2}$ , 4.  
STREET ELLS.  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2.

TEES.

Size.	Size.	Size.	Size.
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	1 x $\frac{3}{4}$ x 1	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $1\frac{1}{2}$	2 x 2 x $\frac{3}{4}$
$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{2}$	1 x 1 x $\frac{1}{2}$	$1\frac{1}{2}$ x $1\frac{1}{4}$ x $1\frac{1}{2}$	2 x 2 x 1
$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{2}$	1 x 1 x $\frac{3}{4}$	$1\frac{1}{2}$ x $1\frac{1}{4}$ x $1\frac{1}{2}$	2 x 2 x $1\frac{1}{4}$
$\frac{1}{2}$ x $\frac{1}{2}$ x $\frac{1}{2}$	1 x 1 x 1	$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{3}{4}$	2 x 2 x $1\frac{1}{2}$
$\frac{3}{4}$ x $\frac{1}{2}$ x $\frac{1}{2}$	1 x 1 x $1\frac{1}{4}$	$1\frac{1}{2}$ x $1\frac{1}{2}$ x $\frac{3}{4}$	2 x $1\frac{1}{2}$ x 2
$\frac{3}{4}$ x $\frac{1}{2}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x 1 x 1	$1\frac{1}{2}$ x $1\frac{1}{2}$ x 1	2 x 2 x 2
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x 1 x $1\frac{1}{4}$	$1\frac{1}{4}$ x $1\frac{1}{2}$ x $1\frac{1}{4}$	$2\frac{1}{2}$ x $2\frac{1}{2}$ x $2\frac{1}{2}$
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{1}{2}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{1}{2}$	$1\frac{1}{2}$ x $1\frac{1}{2}$ x $1\frac{1}{2}$	3 x 3 x 3
$\frac{3}{4}$ x $\frac{3}{4}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $\frac{3}{4}$	$1\frac{1}{2}$ x $1\frac{1}{2}$ x 2	$3\frac{1}{2}$ x $3\frac{1}{2}$ x $3\frac{1}{2}$
$\frac{3}{4}$ x $\frac{3}{4}$ x 1	$1\frac{1}{4}$ x $1\frac{1}{4}$ x 1	2 x $1\frac{1}{2}$ x $1\frac{1}{2}$	4 x 4 x 4
1 x $\frac{3}{4}$ x $\frac{3}{4}$	$1\frac{1}{4}$ x $1\frac{1}{4}$ x $1\frac{1}{4}$	2 x 2 x $\frac{1}{2}$	

COUPLINGS, Right Hand,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2.  
COUPLINGS, Right and Left,  $\frac{1}{4}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2.  
COUPLINGS, Reducing,  $\frac{3}{4}$  x  $\frac{1}{2}$ , 1 x  $\frac{3}{4}$ ,  $1\frac{1}{4}$  x 1,  $1\frac{1}{2}$  x  $1\frac{1}{4}$ , 2 x  $1\frac{1}{2}$ .  
CROSSES, Straight Sizes,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2.  
LOCKNUTS,  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2.  
CAPS,  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ , 2.  
FEMALE DROP ELBOWS AND TEES,  $\frac{1}{2}$ ,  $\frac{3}{4}$ .

GALVANIZED FITTINGS—				
As per Standard List . . .	A.	B.	C.	D.

PRICE PER POUND . . . . .

An extra charge of 10 cents per lb. will be added to price of Galvanized Fittings, not enumerated in Standard List.



# LIST OF SIZES

## MALLEABLE IRON FITTINGS.

### ELBOWS.

$\frac{1}{4}$ X $\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{3}{4}$	$1\frac{1}{2}$ X $1\frac{1}{4}$	$2\frac{1}{2}$ X $1\frac{1}{2}$	3
$\frac{1}{4}$ X $\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	1	$1\frac{1}{2}$	$2\frac{1}{2}$ X 2	$3\frac{1}{2}$ X 3
$\frac{1}{2}$ X $\frac{1}{2}$	$\frac{3}{4}$ X $\frac{1}{2}$	$\frac{1}{4}$ X $\frac{3}{4}$		$2\frac{1}{2}$	$3\frac{1}{2}$
$\frac{1}{2}$ X $1$	$\frac{3}{4}$ X $\frac{3}{4}$	$\frac{1}{4}$ X 1	2 X 1	3 X 2	4 X $3\frac{1}{2}$
$\frac{3}{4}$ X $\frac{1}{2}$	$\frac{3}{4}$ X $\frac{3}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	2 X $1\frac{1}{4}$	3 X $2\frac{1}{2}$	4
$\frac{3}{4}$ X $1$	1 X $\frac{1}{2}$	$\frac{1}{2}$ X 1	2 X $1\frac{1}{2}$		
	1 X $\frac{1}{2}$	$\frac{1}{2}$ X 1	2		

### SIDE OUTLET ELBOWS.

$\frac{1}{2}$ X $\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	$\frac{1}{2}$ X 1	1 X 1 X $\frac{3}{4}$
$\frac{1}{2}$ X $\frac{3}{4}$	$\frac{1}{2}$ X 1	$\frac{1}{2}$ X $1\frac{1}{4}$	1 X 1 X 1
$\frac{1}{2}$ X 1	$\frac{3}{4}$ X $\frac{1}{2}$	$\frac{3}{4}$ X $\frac{3}{4}$	$\frac{1}{4}$ X $1\frac{1}{4}$ X 1
$\frac{1}{2}$ X $1\frac{1}{4}$	$\frac{3}{4}$ X $\frac{3}{4}$	$\frac{3}{4}$ X 1	$\frac{1}{4}$ X $1\frac{1}{4}$ X $1\frac{1}{4}$
$\frac{3}{4}$ X $\frac{1}{2}$	$\frac{3}{4}$ X $\frac{3}{4}$	$\frac{3}{4}$ X $1\frac{1}{4}$	
$\frac{3}{4}$ X $1$	1 X $\frac{1}{2}$	1 X $\frac{3}{4}$	
	1 X $\frac{3}{4}$	1 X 1	

### DROP ELBOWS—FEMALE.

$\frac{1}{4}$ X $\frac{1}{4}$
$\frac{1}{4}$ X $\frac{1}{2}$
$\frac{1}{2}$ X $\frac{1}{2}$
$\frac{1}{2}$ X $1$

$\frac{1}{2}$ X $\frac{1}{2}$
$\frac{1}{2}$ X $\frac{3}{4}$
$\frac{1}{2}$ X 1

### STREET ELBOWS.

$\frac{1}{2}$ X $\frac{1}{2}$
$\frac{1}{2}$ X $\frac{3}{4}$
$\frac{1}{2}$ X 1

1 X $\frac{3}{4}$
1
$1\frac{1}{4}$ X 1
$1\frac{1}{4}$

$1\frac{1}{2}$ X $1\frac{1}{4}$
$1\frac{1}{2}$
2 X $1\frac{1}{2}$
2

### 45° ELBOWS.

$\frac{3}{8}$
$\frac{1}{2}$
$\frac{3}{4}$
1

$1\frac{1}{4}$
$1\frac{1}{2}$
2
$2\frac{1}{2}$

### DROP ELBOWS—SIDE FLANGE.

$\frac{1}{4}$ X $\frac{3}{4}$
$\frac{1}{2}$ X $\frac{3}{4}$

### DROP ELBOWS—MALE AND FEMALE.

#### SHORT.

$\frac{1}{4}$ X $\frac{3}{4}$
$\frac{1}{4}$ X 1
$\frac{1}{2}$ X $\frac{3}{4}$
$\frac{1}{2}$ X 1

#### LONG.

$\frac{1}{4}$ X $\frac{3}{4}$
$\frac{1}{4}$ X 1
$\frac{1}{2}$ X $\frac{3}{4}$
$\frac{1}{2}$ X 1

### RETURN BENDS.

$\frac{1}{4}$
$\frac{3}{8}$
$\frac{1}{2}$
1
$1\frac{1}{4}$

$1\frac{1}{2}$
2
$2\frac{1}{2}$

### TEES.

$\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{3}{4}$	$1\frac{1}{2}$ X 1 X $\frac{3}{4}$	$1\frac{1}{2}$ X $\frac{3}{4}$	2
$\frac{1}{4}$ X $\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{1}{4}$ X 1	$1\frac{1}{2}$ X 1 X $\frac{3}{4}$	$1\frac{1}{2}$ X $\frac{1}{2}$ X $\frac{3}{4}$	2 X $2\frac{1}{2}$
$\frac{1}{4}$ X $\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{1}{2}$ X 1	$1\frac{1}{2}$ X 1 X 1	$1\frac{1}{2}$ X $\frac{3}{4}$	$2\frac{1}{2}$ X 1
$\frac{1}{4}$ X $1$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{3}{4}$ X $1\frac{1}{4}$	$1\frac{1}{2}$ X 1 X $1\frac{1}{4}$	$1\frac{1}{2}$ X 1	$2\frac{1}{2}$ X $1\frac{1}{4}$
$\frac{1}{2}$ X $\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X X X $\frac{3}{4}$	$1\frac{1}{2}$ X 1 X $1\frac{1}{2}$	$1\frac{1}{2}$ X $1\frac{1}{4}$	$2\frac{1}{2}$ X 1 $\frac{1}{2}$
$\frac{1}{2}$ X $\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X X X $\frac{1}{2}$	$1\frac{1}{2}$ X $\frac{3}{4}$ X $\frac{1}{2}$	$1\frac{1}{2}$ X 2	$2\frac{1}{2}$ X 2
$\frac{1}{2}$ X $\frac{3}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X X X $\frac{1}{4}$	$1\frac{1}{2}$ X $\frac{1}{2}$ X $\frac{1}{4}$		$2\frac{1}{2}$
$\frac{1}{2}$ X 1	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{1}{4}$ X $1\frac{1}{4}$	$1\frac{1}{2}$ X 1	2 X $\frac{1}{2}$ X 2	3 X 1
$\frac{3}{4}$ X $\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{2}$	2 X $\frac{1}{4}$ X 2	3 X $1\frac{1}{4}$
$\frac{3}{4}$ X $\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{3}{4}$ X 1	$1\frac{1}{2}$ X $1\frac{1}{4}$	2 X 1 X 2	3 X $1\frac{1}{2}$
$\frac{3}{4}$ X $\frac{3}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X X X $\frac{1}{2}$	$1\frac{1}{2}$ X 2	2 X $1\frac{1}{4}$ X $1\frac{1}{4}$	3 X 2
$\frac{3}{4}$ X 1	$\frac{1}{2}$ X $\frac{3}{4}$	1 X X X $\frac{1}{4}$	$1\frac{1}{2}$ X $\frac{1}{2}$ X 1	2 X $1\frac{1}{4}$ X $1\frac{1}{2}$	3 X $2\frac{1}{2}$
$\frac{3}{4}$ X $1\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{1}{4}$ X $1\frac{1}{4}$	$1\frac{1}{2}$ X $\frac{1}{4}$ X $1\frac{1}{4}$	2 X $1\frac{1}{4}$ X 2	3
$\frac{3}{4}$ X $1\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{2}$ X $\frac{1}{2}$ X $1\frac{1}{4}$	2 X $1\frac{1}{2}$ X $1\frac{1}{4}$	$3\frac{1}{4}$ X $2\frac{1}{4}$
$\frac{3}{4}$ X $1\frac{3}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	1 X $\frac{3}{4}$ X 1	$1\frac{1}{2}$ X $\frac{3}{4}$ X $1\frac{1}{4}$	2 X $1\frac{1}{2}$ X $1\frac{1}{2}$	$3\frac{1}{4}$ X 3
$\frac{3}{4}$ X $2$	$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{4}$ X X 1	$1\frac{1}{2}$ X 1 X 1	2 X $1\frac{1}{4}$ X 2	$3\frac{1}{2}$
$\frac{3}{4}$ X $2\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{4}$ X X $1\frac{1}{4}$	$1\frac{1}{2}$ X 1 X $1\frac{1}{2}$	2 X $\frac{1}{2}$ X $\frac{3}{4}$	4 X 2
$\frac{3}{4}$ X $2\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{4}$ X X X $\frac{3}{4}$	$1\frac{1}{2}$ X 1 X $1\frac{1}{2}$	2 X $\frac{1}{4}$	4 X $2\frac{1}{2}$
$\frac{3}{4}$ X $3$	$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{4}$ X X X $\frac{1}{4}$	$1\frac{1}{2}$ X $1\frac{1}{4}$ X 1	2 X 1	4 X 3
$\frac{3}{4}$ X $3\frac{1}{4}$	$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{4}$ X X X $\frac{1}{2}$	$1\frac{1}{2}$ X $1\frac{1}{4}$ X $\frac{1}{2}$	2 X $1\frac{1}{2}$	4 X $3\frac{1}{2}$
$\frac{3}{4}$ X $3\frac{1}{2}$	$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{4}$ X X X $\frac{3}{4}$	$1\frac{1}{2}$ X $1\frac{1}{2}$ X $1\frac{1}{2}$	2	4
$\frac{3}{4}$ X $4$	$\frac{1}{2}$ X $\frac{3}{4}$	$1\frac{1}{4}$ X X X 1	$1\frac{1}{2}$ X $1\frac{1}{2}$ X $1\frac{1}{2}$		

# LIST OF SIZES

## MALLEABLE IRON FITTINGS.

CONTINUED.

## SIDE OUTLET TEES.

 $\frac{1}{2}$   
 $\frac{3}{4}$   
 1  
 $1\frac{1}{4}$ 

## DROP TEES—FEMALE.

 $\frac{1}{4}$  X  $\frac{1}{4}$  X  $\frac{1}{4}$   
 $\frac{1}{2}$  X  $\frac{1}{2}$  X  $\frac{1}{2}$   
 $\frac{3}{4}$  X  $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $1$   
 $1\frac{1}{4}$  X  $1\frac{1}{4}$  X  $1\frac{1}{4}$ 
 $\frac{1}{2}$  X  $\frac{3}{4}$  X  $\frac{1}{2}$   
 $\frac{3}{4}$  X  $1$  X  $\frac{1}{2}$   
 $1$  X  $1\frac{1}{4}$  X  $\frac{3}{4}$   
 $1\frac{1}{4}$  X  $1\frac{1}{2}$  X  $1$   
 $1\frac{1}{2}$  X  $1\frac{3}{4}$  X  $1\frac{1}{4}$ 
 $\frac{3}{4}$  X  $1$  X  $\frac{3}{4}$   
 $1$  X  $1\frac{1}{4}$  X  $\frac{3}{4}$   
 $1\frac{1}{4}$  X  $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $1\frac{3}{4}$  X  $\frac{3}{4}$   
 $1\frac{3}{4}$  X  $2$  X  $\frac{3}{4}$ 
 $1$  X  $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $1$   
 $1$  X  $1$  X  $1\frac{1}{4}$ 

## DROP TEES—MALE AND FEMALE.

 $\frac{1}{4}$  X  $\frac{1}{4}$  X  $\frac{3}{4}$   
 $\frac{1}{2}$  X  $\frac{1}{2}$  X  $\frac{3}{4}$   
 $\frac{3}{4}$  X  $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $\frac{3}{4}$   
 $1\frac{1}{4}$  X  $1\frac{1}{4}$  X  $\frac{3}{4}$ 
 $\frac{1}{2}$  X  $\frac{1}{2}$  X  $\frac{3}{4}$   
 $\frac{3}{4}$  X  $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $\frac{3}{4}$   
 $1\frac{1}{4}$  X  $1\frac{1}{4}$  X  $\frac{3}{4}$ 
1 X 1 X  $\frac{3}{4}$ With drop  $2\frac{1}{2}$  long  
 $\frac{3}{4}$  X  $\frac{3}{4}$  X  $\frac{3}{4}$ 

## CROSSES.

 $\frac{1}{4}$  X  $\frac{1}{4}$   
 $\frac{1}{2}$  X  $\frac{1}{2}$   
 $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$   
 $1\frac{1}{4}$  X  $1\frac{1}{4}$   
 $1\frac{1}{2}$  X  $1\frac{1}{2}$   
 $1\frac{3}{4}$  X  $1\frac{3}{4}$   
 $2$  X  $2$ 
 $\frac{3}{4}$  X  $\frac{3}{4}$  X  $\frac{1}{2}$   
 $1$  X  $1$  X  $\frac{1}{2}$   
 $1\frac{1}{4}$  X  $1\frac{1}{4}$  X  $\frac{1}{2}$   
 $1\frac{1}{2}$  X  $1\frac{1}{2}$  X  $\frac{1}{2}$   
 $1\frac{3}{4}$  X  $1\frac{3}{4}$  X  $\frac{1}{2}$   
 $2$  X  $2$  X  $\frac{1}{2}$   
 $2\frac{1}{2}$  X  $2\frac{1}{2}$  X  $\frac{1}{2}$   
 $3$  X  $3$  X  $\frac{1}{2}$ 
 $1$  X  $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $\frac{3}{4}$   
 $1$  X  $1$  X  $\frac{3}{4}$   
 $1\frac{1}{4}$  X  $1$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $1$  X  $\frac{3}{4}$   
 $1\frac{3}{4}$  X  $1$  X  $\frac{3}{4}$   
 $2$  X  $2$  X  $\frac{3}{4}$ 
 $1\frac{1}{4}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $1$   
 $1\frac{3}{4}$  X  $1\frac{1}{4}$  X  $1\frac{1}{4}$   
 $2$  X  $1\frac{1}{2}$  X  $1\frac{1}{4}$   
 $2\frac{1}{2}$  X  $1\frac{1}{2}$  X  $1\frac{1}{4}$   
 $3$  X  $1\frac{1}{2}$  X  $1\frac{1}{4}$   
 $3\frac{1}{2}$  X  $1\frac{1}{2}$  X  $1\frac{1}{4}$   
 $4$  X  $1\frac{1}{2}$  X  $1\frac{1}{4}$ 
 $1\frac{1}{2}$   
 $2$  X  $\frac{1}{2}$   
 $2$  X  $\frac{3}{4}$   
 $2$  X  $1$   
 $2$  X  $1\frac{1}{4}$   
 $2$  X  $1\frac{1}{2}$   
 $2$   
 $2\frac{1}{2}$  X  $1\frac{1}{2}$ 
 $2\frac{1}{2}$  X  $2$   
 $3$  X  $2$   
 $3$  X  $2\frac{1}{2}$   
 $3\frac{1}{2}$   
 $4$ 

## RETURN BENDS.

## OPEN PATTERN.

 $\frac{1}{4}$   
 $\frac{1}{2}$   
 $1$   
 $1\frac{1}{4}$ 
 $1\frac{1}{2}$   
 $2$   
 $2\frac{1}{2}$ 

## CLOSE PATTERN.

 $\frac{3}{4}$   
 $1$   
 $1\frac{1}{4}$ 
 $1\frac{1}{2}$   
 $2$   
 $3$ 

## CAPS.

 $\frac{1}{4}$   
 $\frac{1}{2}$   
 $\frac{3}{4}$   
 $1$ 
 $1\frac{1}{4}$   
 $1\frac{1}{2}$   
 $2$   
 $2\frac{1}{2}$ 
 $3$   
 $3\frac{1}{2}$   
 $4$ 

## PLUGS.

 $\frac{1}{4}$   
 $\frac{1}{2}$   
 $\frac{3}{4}$   
 $1$ 
 $1\frac{1}{4}$   
 $1\frac{1}{2}$   
 $2$ 

## REDUCING COUPLINGS.

 $\frac{1}{4}$  X  $\frac{1}{4}$   
 $\frac{1}{2}$  X  $\frac{1}{2}$   
 $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$   
 $1\frac{1}{4}$  X  $1\frac{1}{4}$   
 $1\frac{1}{2}$  X  $1\frac{1}{2}$   
 $1\frac{3}{4}$  X  $1\frac{3}{4}$   
 $2$  X  $2$ 
 $\frac{1}{4}$  X  $\frac{1}{4}$   
 $\frac{1}{2}$  X  $\frac{1}{2}$   
 $\frac{3}{4}$  X  $\frac{3}{4}$   
 $1$  X  $1$   
 $1\frac{1}{4}$  X  $1\frac{1}{4}$   
 $1\frac{1}{2}$  X  $1\frac{1}{2}$   
 $1\frac{3}{4}$  X  $1\frac{3}{4}$   
 $2$  X  $2$ 
 $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $\frac{3}{4}$   
 $1\frac{1}{2}$  X  $\frac{3}{4}$ 
 $2$  X  $\frac{3}{4}$   
 $2$  X  $\frac{3}{4}$   
 $2$  X  $\frac{3}{4}$   
 $2$  X  $\frac{3}{4}$   
 $2\frac{1}{2}$  X  $\frac{3}{4}$   
 $2\frac{1}{2}$  X  $\frac{3}{4}$   
 $2\frac{1}{2}$  X  $\frac{3}{4}$   
 $2\frac{1}{2}$  X  $\frac{3}{4}$ 
 $2\frac{1}{2}$  X  $2$   
 $3$  X  $1\frac{1}{4}$   
 $3$  X  $1\frac{1}{2}$   
 $3$  X  $1\frac{1}{2}$   
 $3$  X  $2$   
 $3$  X  $2\frac{1}{2}$   
 $3\frac{1}{2}$  X  $1\frac{1}{2}$ 
 $3\frac{1}{2}$  X  $2$   
 $3\frac{1}{2}$  X  $2\frac{1}{2}$   
 $3\frac{1}{2}$  X  $3$   
 $4$  X  $2$   
 $4$  X  $2\frac{1}{2}$   
 $4$  X  $3$   
 $4$  X  $3\frac{1}{2}$ 

## R. &amp; L. COUPLINGS.

 $\frac{1}{4}$   
 $\frac{1}{2}$   
 $\frac{3}{4}$   
 $1$ 
 $1\frac{1}{4}$   
 $1\frac{1}{2}$   
 $2$ 

## R. H. COUPLINGS.

 $\frac{1}{4}$   
 $\frac{1}{2}$   
 $\frac{3}{4}$   
 $1$ 
 $1\frac{1}{4}$   
 $1\frac{1}{2}$ 
 $2$   
 $2\frac{1}{2}$   
 $3$   
 $3\frac{1}{2}$ 

4

## LOCKNUTS.

 $\frac{1}{4}$   
 $\frac{1}{2}$   
 $\frac{3}{4}$   
 $1$ 
 $1\frac{1}{4}$   
 $1\frac{1}{2}$   
 $2$   
 $2\frac{1}{2}$   
 $3$ 

## WASTE NUTS.

 $\frac{1}{4}$   
 $\frac{1}{2}$   
 $1$ 

## CHANDELIER HOOKS.

 $\frac{3}{4}$   
 $1$

# MALLEABLE IRON FITTINGS.

For list of prices see pages 38 and 39.

STEAM ELBOW.



Fig. 80.

GAS ELBOW.

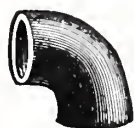


Fig. 81.

DROP ELBOW.

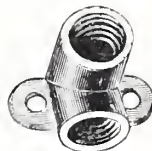


Fig. 82.

M. AND F. ELBOW.



Fig. 83.

SIDE OUTLET ELBOW.

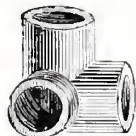


Fig. 84.

STREET ELBOW.



Fig. 85.

DROP ELL, FLANGE TO L.

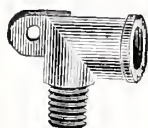


Fig. 86.

DROP ELL, FLANGE TO R.



Fig. 87.

DROP ELL, LONG OUTLET.

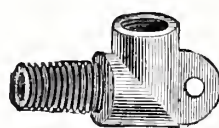


Fig. 88.

LOCKNUT.



Fig. 89.

STEAM TEE.



Fig. 90.

GAS TEE.

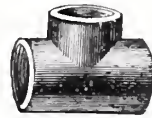


Fig. 91.

DROP TEE.

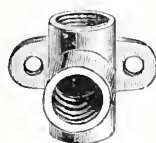


Fig. 92.

DROP TEE, MALE.

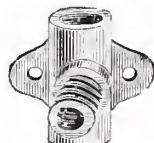


Fig. 93.

S. O. TEE.

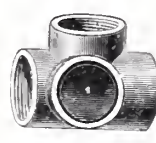


Fig. 94.

# MALLEABLE IRON FITTINGS.

CONTINUED.

For list of prices see pages 38 and 39.

STEAM CROSS.



Fig. 95.

GAS CROSS.



Fig. 96.

REDUCING CROSS.

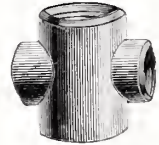


Fig. 97.

COUPLING.



Fig. 98.

R. AND L. COUPLING.



Fig. 99.

REDUCING COUPLING.



Fig. 100.

RETURN BEND, CLOSE.



Fig. 101.

RETURN BEND, OPEN.

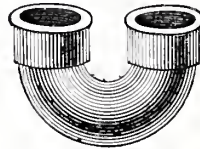


Fig. 102.

CHANDELIER HOOK.



Fig. 103.

CHANDELIER HOOK.



Fig. 104.

PLUG.



Fig. 105.

BUSHING.



Fig. 106.

CAP.



Fig. 107.

WASTE NUT.



Fig. 108.

WALL BRACKET.



Fig. 109.

# MALLEABLE IRON FITTINGS.

## CONTINUED.

For list of prices see pages 38 and 39.

UNION.



Fig. 110.

MAL. FLANGE UNION.

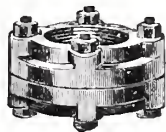


Fig. 111.

EXTENSION PIECE.

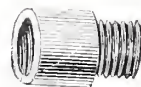


Fig. 112.

For Prices see page 38.

For Classification and Sizes see pages 32, 33 and 34.

For Prices on Galvanized Fittings see page 39.

For Prices on Rustless Fittings see page 39.

For Prices on Enameled Fittings see page 39.

# PIPE HOOKS.

SHORT SHANK  
HOOK.



Fig. 113.

EXPANSION  
HOOK.



Fig. 114.

RING HOOK.



Fig. 115.

BEAM HOOK.



Fig. 116.

## HOOKS — Figs. 113, 114, 115 and 116.

SIZE PIPE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Figure 113, Short Shank Hooks . . . . .	. .	.07	.09	.10	.20	.30	.35	.45
Figure 114, Expansion Hooks . . . . .	. .	.10	.12	.15	.25	.35	. .	. .
Figure 115, Ring Hooks . . . . .	. .	.13	.15	.20	. .	. .	. .	. .
Figure 116, Beam Hooks . . . . .	.10	.11	.13	.15	.18	.24	.45	.60



PRICE-LIST  
MALLEABLE IRON FITTINGS.

PLAIN.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
ELBOWS . . . . . Each,	.04	.04	.06	.10	.15	.22	.25	.35	.50	.80	1.50	2.25	3.00		4.00	5.00
“ 45° . . . . . “		.08	.10	.12	.18	.26	.36	.54	.82	1.25	2.50	3.25	4.50			
“ Street . . . . . “			.10	.12	.20	.25	.40	.55	.90	1.50						
“ Side Outlet . . . . . “			.08	.10	.18	.30	.45	.60								
“ Drop . . . . . “		.06	.08	.12	.20											
TEES . . . . . “	.07	.07	.08	.11	.15	.25	.30	.45	.60	1.05	1.70	2.50	3.40		5.00	7.00
“ Reducing . . . . . “		.07	.08	.11	.15	.25	.30	.45	.60	1.05	1.70	2.50	3.40		5.00	7.00
“ Side Outlet . . . . . “			.12	.14	.20	.35	.50	.80								
“ Drop . . . . . “			.10	.14	.22	.30										
“ Drop, $2\frac{1}{2}$ inches . . . . . “			.12													
CROSSES . . . . . “		.08	.10	.12	.20	.30	.40	.60	1.00	1.75	3.00	3.25	5.25			
BUSHINGS . . . . . “			.05	.06	.07	.09	.13	.17	.27	.42						
“ Faced . . . . . “			.08	.09	.11	.13	.17	.22	.32	.48						
REDUCERS . . . . . “		.03	.03	.05	.10	.16	.20	.28	.45	.70	1.00	1.50	1.85			
CAPS . . . . . “		.03	.04	.05	.08	.12	.16	.24	.32	.45	.85	1.00	1.20			
LOCKNUTS . . . . . “		.02	.03	.04	.05	.07	.09	.11	.18							
“ Faced . . . . . “		.08	.09	.10	.12	.15	.20	.25	.30	.35	.45					
WASTENUTS . . . . . “		.04	.05	.06	.08	.10										
EXTENSION PIECES . . . . . “			.06	.09	.12											
CHANDLIER HOOKS . . . . . “			.10	.12												
WALL PLATES . . . . . “			.12													
UNIONS . . . . . “		.15	.18	.20	.28	.34	.46	.60	.80	1.50	2.10	3.00	4.00			
“ Flanged . . . . . “					1.40	1.60	2.00	2.50	3.00	3.50	4.40	5.25	6.00	7.00	8.00	9.00
RETURN BENDS, Close and																
“ Medium . . . . . “				.13	.25	.35	.50	.75	1.00							
“ Close R. & L. . . . . “				.15	.30	.45	.60	.90	1.25							
“ Open . . . . . “				.15	.30	.50	.65	.85	1.25	2.00	3.00					
“ Open R. & L. . . . . “				.20	.38	.60	.80	1.05	1.55	2.50	3.75					
COUPLINGS . . . . . “		.03	.04	.07	.16	.14	.20	.25	.35							
“ R. & L. . . . . “		.04	.05	.08	.12	.16	.25	.36	.52							
PLUGS . . . . . “		.05	.05	.07	.11	.15	.25	.30	.45							

ELBOWS Drop, Flanged, Right or Left,  $\frac{1}{4}$  x  $\frac{3}{8}$ , each, .08;  $\frac{3}{8}$  x  $\frac{3}{8}$ , each, .08.  
“ “  $2\frac{1}{2}$  Inches,  $\frac{1}{4}$  x  $\frac{3}{8}$ , each, .10;  $\frac{3}{8}$  x  $\frac{3}{8}$ , each, .10.

For Illustrations see pages 35, 36 and 37. For Sizes see pages 33-34. For Classification see page 32.  
For List of Galvanized and Enameled Fittings, see page 39.

GAS COCK WRENCH.



Fig. 117.

SIZE . INCHES.	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4		
PRICE . . . . .	\$0.07	.07	.08	.09	.15	.25	.35	.45	.80	1.00	1.25	1.50	1.75

## PRICE-LIST

# MALLEABLE IRON FITTINGS.

### GALVANIZED AND ENAMELED.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	
ELBOWS, 90° . . . . . Each.	.05	.08	.14	.30	.32	.40	.60	.90	1.35	2.60	3.75	5.00
“ 45° . . . . . “	. .	.15	.20	.25	.40	.50	.85	1.35	. .	. .	. .	. .
“ Drop . . . . . “	. .	.12	.20	.35	.40	. .	. .	. .	. .	. .	. .	. .
“ Street . . . . . “	. .	.12	.15	.28	.35	.55	.80	1.30	. .	. .	. .	. .
TEES, Straight or Reducing . . . . . “	. .	.10	.16	.20	.38	.50	.70	1.00	1.90	3.00	4.25	5.75
“ Drop . . . . . “	. .	.15	.25	.40	.55	. .	. .	. .	. .	. .	. .	. .
CROSSES, Straight or Reducing . . . . . “	. .	.15	.17	.25	.45	.60	.90	1.50	2.75	4.25	5.00	8.00
AIR CHAMBERS . . . . . “	. .	. .	.45	.55	.65	.75	. .	. .	. .	. .	. .	. .
BUSHINGS . . . . . “	. .	.06	.07	.10	.14	.21	.30	.44	.60	1.00	1.40	1.50
CAPS . . . . . “	.04	.05	.08	.12	.17	.24	.38	.52	.76	1.30	2.25	3.00
COUPLINGS, R. H. . . . . “	.05	.07	.10	.17	.23	.30	.40	.55	. .	. .	. .	. .
“ R. & L. . . . . “	.06	.08	.10	.17	.25	.35	.55	.75	. .	. .	. .	. .
“ W. I. R. H. . . . . “	.06	.08	.10	.13	.18	.25	.32	.40	.55	.80	1.05	1.40
“ W. I. R. & L. . . . . “	.08	.10	.13	.20	.25	.35	.42	.65	1.00	1.50	. .	. .
LOCKNUTS . . . . . “	.03	.04	.05	.07	.10	.14	.20	.30	.55	.70	. .	. .
PLUGS . . . . . “	.05	.05	.07	.11	.15	.25	.30	.45	. .	. .	. .	. .
REDUCING COUPLINGS . . . . . “	. .	.05	.08	.15	.25	.35	.45	.75	1.05	1.65	2.40	3.05
RETURN BENDS, Close . . . . . “	. .	. .	.25	.35	.55	.75	1.15	1.65	. .	. .	. .	. .
UNIONS . . . . . “	.20	.24	.27	.37	.50	.70	.90	1.20	2.25	2.90	4.50	5.60

For Galvanized Cast Iron Fittings see page 21.

For Galvanized Nipples see page 22.

### “RUSTLESS” FITTINGS.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
ELBOWS . . . . . Each.	\$0.09	.15	.22	.32	.38	.60	1.25	1.75
“ 45° . . . . . “	.10	.15	.20	.26	.35	.50	1.30	1.60
TEES . . . . . “	.09	.18	.28	.40	.48	.75	1.40	2.10
CROSSES . . . . . “	.11	.20	.30	.42	.55	.85	2.00	3.10
COUPLINGS, Wrought . . . . . “	.07	.10	.13	.17	.21	.28	.40	.60
REDUCING COUPLINGS . . . . . “	.09	.12	.18	.25	.36	.50	.75	1.20
R. AND L. COUPLINGS . . . . . “	.11	.15	.20	.25	.30	.50	.85	1.20
CAPS . . . . . “	.05	.08	.11	.15	.22	.30	.50	.80
PLUGS . . . . . “	.04	.05	.06	.10	.13	.20	.35	.50
NIPPLES, Close . . . . . “	.07	.09	.10	.14	.17	.25	.56	.75
NIPPLES, Long . . . . . “	.10	.11	.15	.20	.25	.35	.75	.95
NIPPLES, R. and L. . . . . “	.16	.20	.24	.35	.46	.60	1.30	1.60
UNIONS . . . . . “	.20	.28	.34	.46	.60	.80	1.50	2.10

For Illustrations and List of Sizes, see pages 32 to 37.

BRANCH TEES.

BRANCH TEE.



Fig. 118.

BRANCH TEE,  
BACK OUTLET ON END.



Fig. 119.

BRANCH TEE, BACK OUTLET.



Fig. 120.

BRANCH TEE, SIDE OUTLET.



Fig. 121.

Figs. 119, 120 and 121. See note at bottom.

NUMBER OF BRANCHES . . . . .	2	3	4	5	6	7	8	9	10	12
$\frac{3}{4}$ Inch branches, 1 or $1\frac{1}{4}$ inch run, $2\frac{1}{2}$ centre to centre	80.70	.80	.95	1.10	1.35	2.05	2.35	2.55	2.85	3.75
* $\frac{3}{4}$ " " " $1\frac{1}{2}$ " " $2\frac{1}{2}$ "	.90	1.05	1.25	1.35	1.60	2.30	2.60	2.80	3.20	. .
1 " " " $1\frac{1}{2}$ or $1\frac{1}{4}$ " " $2\frac{1}{2}$ "	.70	.80	.95	1.10	1.35	2.05	2.35	2.55	2.85	3.75
1 " " " $1\frac{1}{2}$ " " $2\frac{1}{2}$ "	.75	.90	1.05	1.20	1.50	2.20	2.50	2.80	3.15	4.00
1 " " " 2 " " $2\frac{1}{2}$ "	1.00	1.20	1.60	1.80	2.00	2.40	2.80	3.30	4.00	4.75
* 1 " " " $2\frac{1}{2}$ " " $2\frac{1}{2}$ "	2.25	2.75	3.15	3.50	3.85	4.25	4.75	5.25	5.75	6.25
$1\frac{1}{4}$ " " " $1\frac{1}{4}$ or $1\frac{1}{2}$ " " 3 "	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	4.40	4.80
$1\frac{1}{4}$ " " " 2 " " 3 "	1.40	1.85	2.45	2.90	3.40	3.90	4.40	5.00	5.50	6.00
$1\frac{1}{4}$ " " " $2\frac{1}{2}$ " " 3 "	1.65	2.10	2.70	3.40	3.90	. .	. .	. .	. .	. .
$1\frac{1}{2}$ " " " $1\frac{1}{2}$ " " 3 "	1.50	2.00	2.50	3.00	3.50	4.00	4.50	. .	. .	. .
$1\frac{1}{2}$ " " " 2 " " 3 "	1.75	2.25	2.75	3.25	3.75	4.25	4.75	. .	. .	. .
2 " " " 2 " " $4\frac{1}{2}$ "	3.50	4.60	5.70	6.80	7.95	. .	. .	. .	. .	. .

\* Furnished only to order.

Back or side outlets charged as additional front outlets.

In ordering, be particular to state size of run required. When not otherwise ordered, all openings will be tapped right hand.

LONG SCREW.



Fig. 122.

LONG SCREWS.

SIZE . . . . .	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Standard Length .	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9
Plain, each . . . . .	80.30	.35	.40	.55	.75	1.00	1.30	1.70	2.70	3.70	5.39	6.60
Galvanized, each . .	.30	.40	.50	.66	1.00	1.25	1.60	2.10	3.10	4.70	5.50	6.75

HOOK, EXPANSION AND RING PLATES.

HOOK PLATE.



Fig. 123.

RING PLATE.



Fig. 124.

EXPANSION PLATE.



Fig. 125.

OFFSET HOOK PLATE.



Fig. 126.

	Centre to Centre.	Size of Pipe.	No. of Hooks.	2	3	4	5	6	7	8	9	10	12
Fig. 123.	2½	¾	Each.	\$0.12	.16	.20	.24	.28	.32	.36	.43	.50	.72
"	2½	1	"	.15	.21	.27	.32	.40	.48	.56	.65	.70	1.00
"	3	1¼	"	.20	.30	.40	.50	.65	.75	.80	.95	1.05	1.25
"	3	1½	"	.40	.60	.80	1.00	1.20	1.40	1.60	1.80	2.00	2.40
"	4½	2	"	.50	.75	1.00	1.25	1.50	..	..	..	..	..
Fig. 124.	2½	¾	"	.22	.30	.40	.50	.60	.70	.80	.95	1.15	1.50
"	2½	1	"	.25	.35	.45	.55	.65	.75	.85	1.00	1.20	1.60
"	3	1¼	"	.50	.60	.90	1.00	1.15	..	..	..	..	..
Fig. 125.	2½	¾	"	.16	.24	.34	.40	.50	.60	.70	.80	.90	1.10
"	2½	1	"	.20	.27	.38	.45	.55	.65	.75	.85	.95	1.20
"	3	1¼	"	.30	.38	.50	.65	.75	.90	1.05	1.20	1.35	1.75
"	3	1½	"	.50	.70	.90	1.10	1.40	1.70	2.15	..	..	..
"	4½	2	"	.60	.85	1.00	1.35	1.55	2.00	2.45	..	..	..
Fig. 126.	1½	1¼	"	.84	1.10	1.40	1.80	2.25	2.50	2.80	..	..	..
"	3	1¼	"	1.10	1.70	1.95	2.25	2.50	2.80	3.35	..	..	..
"	4	1½	"	1.70	1.95	2.25	2.50	2.80	..	..	..	..	..

IRON PIPE ROLL.

SIZES AND PRICES.

SIZE . . . INCHES.	1	1¼	1½	2
Price . . . . .	\$0.06	.07	.08	.13

Special Flanges tapped for  $\frac{9}{16}$  rods and drilled for screws, each, 10c.  
Price does not include flanges, hangers and rods.



Fig. 127.



Fig. 128.

SIZE . . INCHES.	2½	3	3½	4	4½	5	6	7	8	10	12	14
Price, each . .	\$0.12	.12	.21	.21	.24	.24	.27	.36	.44	.72	1.05	1.32

# C. C. WALWORTH'S PATENT MANIFOLDS

## WITH JENKINS DISCS.

### NOS. 3 SUPPLY AND 6 RETURN.

#### SINGLE VALVE SUPPLY.

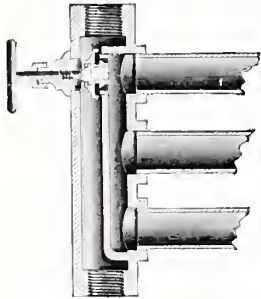


Fig. 129.

One inch outlets,  $2\frac{1}{2}$  centre to centre,  
 Supply inlets,  $1\frac{1}{2}$  or 2. Return inlets 1 or  $1\frac{1}{4}$ .

No. Branches.	2	3	4	5	6	8
No. 3 Supply . . .	\$2.75	3.00	3.25	3.50	3.75	4.75
No. 6 Return . . .	2.00	2.25	2.50	2.75	3.00	4.00

All with Jenkins Discs.  
 Manifolds with additional number of  
 branches made to order.

#### SINGLE VALVE RETURN.

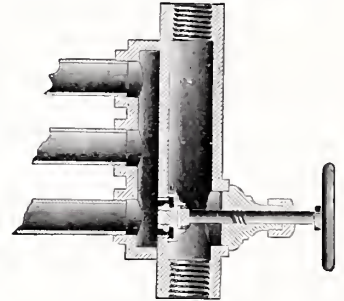


Fig. 130.

### NOS. 1 SUPPLY AND 4 RETURN.

#### DOUBLE VALVE SUPPLY.

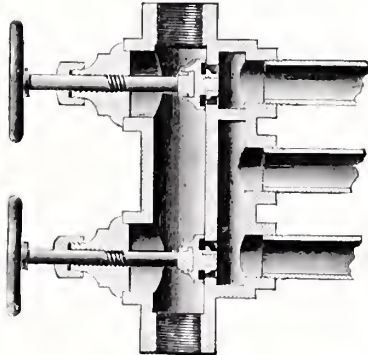


Fig. 131.

One inch outlets,  $2\frac{1}{2}$  centre to centre.  
 Supply inlets,  $1\frac{1}{2}$  or 2. Return inlets,  
 1 or  $1\frac{1}{4}$ .

No.	2	3	4	5	6	8
No. 1 Supply . . .	\$5.00	5.25	5.50	5.75	6.00	7.00
No. 4 Return . . .	3.25	3.38	3.50	3.63	3.75	4.75

All with Jenkins Discs.

#### DOUBLE VALVE RETURN.

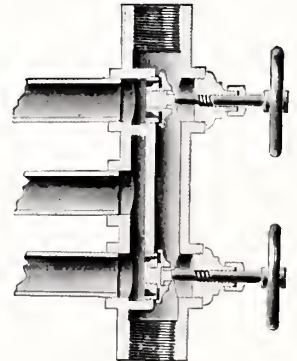


Fig. 132.

### NOS. 2 SUPPLY AND 5 RETURN.

$1\frac{1}{4}$  outlets, 3 inches centre to centre.  
 Supply inlets,  $1\frac{1}{2}$ , 2 or  $2\frac{1}{2}$ . Return inlets,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$  or 2.

No. BRANCHES.	2	3	4	5	6	8
No. 2 Supply, $2\frac{1}{2}$ Inlets . . . . .	\$9.50	9.75	10.00	10.25	10.50	11.50
No. 2 Supply, $1\frac{1}{2}$ or 2 Inlets . . . . .	5.75	6.00	6.25	6.50	6.75	7.75
No. 5 Return, $1\frac{1}{4}$ , $1\frac{1}{2}$ or 2 Inlets . . . . .	5.75	6.00	6.25	6.50	6.75	7.75

All with Jenkins Discs.



THE S. & W. PIPE  
HANGER.

SIZES AND PRICES.

SIZE IN.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8	9	10
Price . . .	15	15	18	18	20	22	25	30	35	37	40	45	50	85	95	1.05	1.20

As lengthening pieces, iron pipe, is needed as follows :  
 $\frac{1}{8}$  inch pipe for Hangers,  $\frac{1}{8}$  to 1 inch inclusive.  
 $\frac{1}{4}$  inch pipe for Hangers,  $1\frac{1}{4}$  to  $2\frac{1}{2}$  inch inclusive.  
 $\frac{3}{8}$  inch pipe for Hangers, 3 to 6 inch inclusive.  
 $\frac{1}{2}$  inch pipe for Hangers, 7 to 8 inch inclusive.

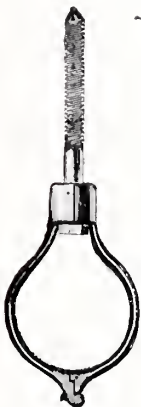


Fig. 133.

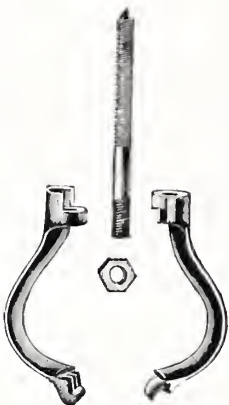


Fig. 134.  
SECTIONAL VIEW.

THE BLAKE PIPE HANGER.



No. 1.  
Fig. 135.



No. 2.  
Fig. 136.



No. 3.  
Fig. 137.



No. 4.  
Fig. 138.



No. 8.  
Fig. 139.



No. 9.  
Fig. 140.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
No. 1 and 4 complete . . . . .	\$0.15	.15	.18	.18	.20	.22	.25	.30	.35	.37
No. 2, 3, 8 or 9 complete . . . . .	.55	.55	.58	.58	.60	.62	.65	.70	.75	.77
No. 6 or 7 complete . . . . .	.42	.42	.45	.45	.46	.46	.49	.74	.79	.97
Length of expansion on Stone Bolts, inches. . .	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3
Size holes to drill for Stone Bolts, 6 or 7 . . . .	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

SIZE . . . . . INCHES.	4	$4\frac{1}{2}$	5	6	7	8	9	10	11	12	14
No. 1 and 4 complete . . . . .	\$0.45	.50	.55	.65	.85	.95	1.05	1.20	1.35	1.55	1.75
No. 2, 3, 8 or 9 complete . . . . .	.85	.90	.95	1.05	1.25	1.35	1.45	1.60	1.75	1.95	2.15
No. 6 or 7 complete . . . . .	1.05	1.10	1.15	1.55	1.75	1.85	1.95	2.10	2.25	2.45	2.65
Length expansion on Stone Bolts, . inches. . .	3	3	3	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$
Size holes to drill for Stone Bolts, 6 or 7 . . .	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$

In ordering Hangers No. 6 or 7, state length of Stone Bolt required. Unless otherwise specified, we shall furnish regular Bolt 4 inches long. In ordering Hangers No. 8 or 9, state whether No. 1 or 2 Beam Clamp is required.  
Numbers 8 and 9 are made in two sizes, suitable for iron beams 2 to 4 inches, and for iron beams 4 to 6 inches.

CEILING AND FLOOR PLATES.

CAST IRON FLOOR PLATES.

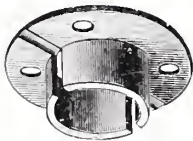


Fig. 141.



Fig. 142.

This Floor Plate is made with grooves on the under side of the flange, as shown in cut, in order that it may be easily parted by a slight blow when required to be used in halves.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Price, each . . . . .		\$0.06	.08	.10	.15	.18	.23	.30	.40

CAST IRON, NICKEL PLATED.

BRASS.



Fig. 143.



Fig. 144.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 143 . . . . .	Each.	\$0.16	.18	.20	.20	.30	.40
Fig. 144 . . . . .	"	.64	.72	.80	1.00	1.40	1.80

Fig. 143 is of equal finish to all Brass at less cost.  
Fig. 144 can be furnished in halves at same prices.

STAMPED BRASS FLOOR AND CEILING PLATES.

CEILING PLATE.

FLOOR PLATE.



Fig. 145.

NICKEL PLATED.



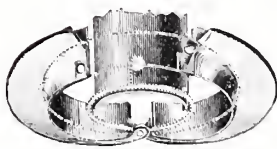
Fig. 146.

SIZE . . . . .	INCHES.	$\frac{1}{4}$	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 145, Worcester ceiling . . . . .	Each.	\$0.08	.08	.10	.10	.11	.12	.13	.15
Fig. 146, " floor . . . . .	"	.08	.08	.10	.10	.11	.12	.13	.15

CEILING AND FLOOR PLATES.

CONTINUED.

BEATON CEILING AND FLOOR PLATES.



OPEN.  
Fig. 147.



CLOSED.  
Fig. 148.

NICKEL PLATED.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Figs. 147 and 148, each . . . . .	\$0.09	.09	.12	.14	.16	.20	.35	.60	.90	1.25	1.60	2.00

TIN FLOOR TUBES.



Fig. 149.

Sizes $1\frac{1}{2}$ to 2 inches, each . . . . .	\$0.25
--	--------

MALLEABLE PIPE RINGS.

PIPE RING.



Fig. 150.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8
WEIGHT PER 100. . . . .	94	154	18	28	35	39	49½	71	84½	91	100	125	...	...
Each. . . . .	\$0.03	.03	.03	.04	.05	.06	.10	.20	.25	.35	.40	.50	.55	.60

Sizes above 4-inch made of Wrought Iron.

UNION ELBOWS AND TEES.  
MALLEABLE IRON.

UNION ELBOW—MALE.

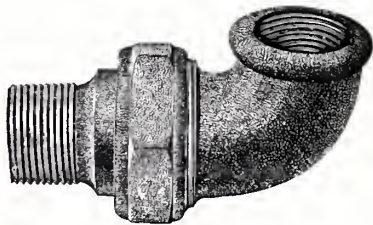


Fig. 151.

UNION ELBOW—FEMALE.

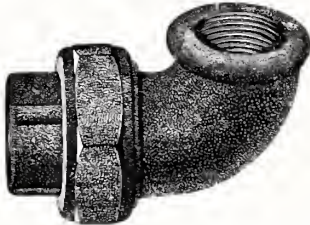


Fig. 152.

SIZES AND PRICES—Figs. 151 and 152.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Male or Female, plain . . . . Each.	\$0.28	.35	.45	.65	.80	1.25	2.50
Male or Female, galvanized. . . . "	.40	.55	.65	1.00	1.20	1.85	3.75

UNION TEE—MALE.



Fig. 153.

UNION TEE—FEMALE.

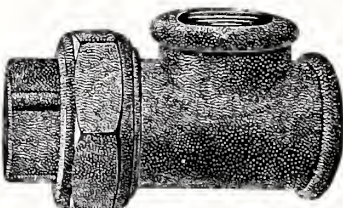


Fig. 154.

SIZES AND PRICES — Figs. 153 and 154.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Male or Female, plain . . . . Each.	\$0.28	.45	.55	.65	.80	1.25	2.50
Male or Female, galvanized. . . . "	.40	.55	.65	1.00	1.20	1.85	3.75

STRAPS AND CLIPS.

TINNED STRAPS.

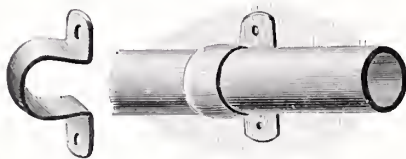


Fig. 155.

CAST IRON CLIPS.

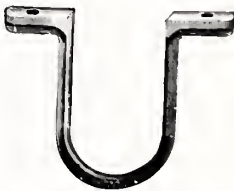


Fig. 156.

SIZE OF PIPE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 155. Straps . . . . . per 100.	\$1.00	1.00	1.00	1.50	2.00	2.50	3.50	. . .	. . .	. . .
" 156. Clips, each . . . . .	. . .	. . .	. . .	.03	.03	.04	.05	.06	.10	.12



ORNAMENTAL PIPE COIL FITTINGS.

FOR BUILDING STEAM AND HOT WATER HEATING COILS.

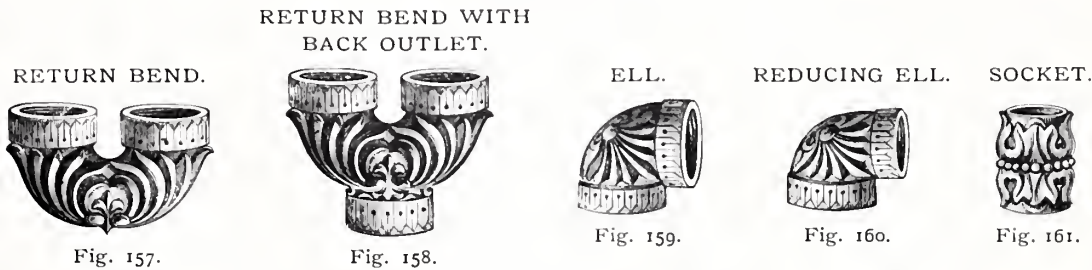


Fig. 157.	Return Bends, 1 inch, 2½ C. to C.	Each.	\$0.45
"	" 1½ " 3 "	"	.72
" 158.	" " Back Outlet 1 inch Bends	"	.70
"	" " " " 1½ " "	"	1.20
"	" " " " 1 " or ¾ Outlet	"	.70
"	" " " " 1½ or 1 inch "	"	1.20
" 159.	Ells, 1 inch	"	.30
"	" 1½ "	"	.50
" 160.	Reducing Ells, 1 x ¾	"	.35
"	" " 1½ x 1	"	.65
" 161.	Sockets, R. H., 1 inch	"	.30
"	" " 1½ "	"	.50
"	" R. and L., 1 inch	"	.35
"	" " 1½ "	"	.55

ROSETTE PLATES.

☞ Please note that these are only made for even number of Pipes.

NUMBER OF PIPES HIGH . . . . .	2	4	6	8	10	12	14	16	18	20	22	24
Fig. 162. For 1 inch Pipe, each .	\$0.40	.80	.90	1.20	1.40	1.80	2.00	2.40	2.80	3.20	3.70	4.25
" " For 1½ inch Pipe, each .	.70	1.30	1.50	1.80	2.20	2.75	3.30	3.80	4.30	4.80	5.50	6.00

ORNAMENTAL MANIFOLD OR BRANCH TEE.

Both ends tapped same size as outlets. For ends tapped larger than outlet an extra charge will be made.

NUMBER OF OUTLETS . . . . .	4	6	8	10	12
Fig. 163. For 1 Pipe, size body — 1½ in. C. to C. of Outlets, 2½ in., each	\$1.55	2.40	4.00	4.75	6.00
" " For 1½ Pipe, " — 2 " " " 3 " "	3.70	5.50	7.00	8.75	9.75



## PIPE COILS.

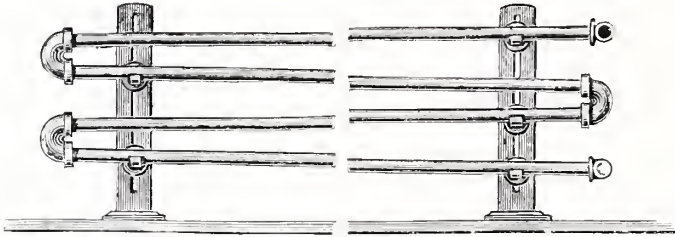


Fig. 164.

WITH RETURN BENDS.

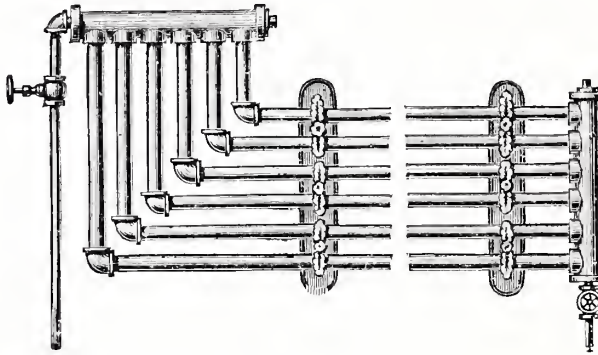


Fig. 165.

WITH BRANCH TEES.

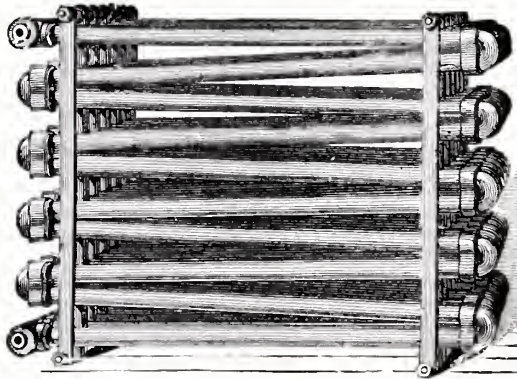


Fig. 166.

BOX COILS.

We desire to call attention particularly to the fact that we are possessed of unusual facilities for furnishing all sizes of WROUGHT IRON PIPE COILS.

## PIPE COILS—CONTINUED.

## HEATER COILS.



Fig. 167.



Fig. 168.

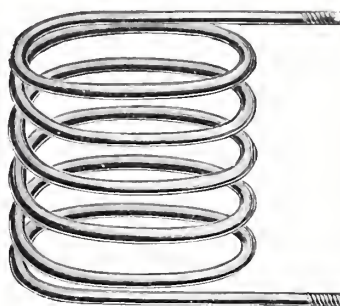


Fig. 169.

## COIL FOR BOILING SOAP.

## FLAT TANK COIL.

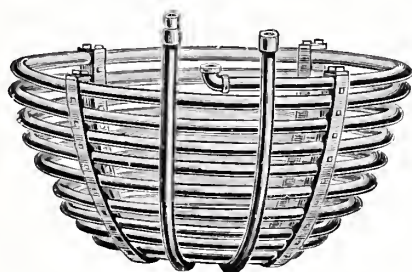


Fig. 170.

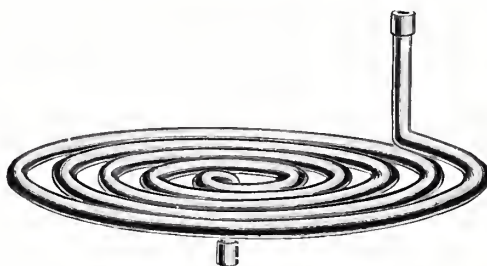


Fig. 171.

We can furnish Coils made of Iron, Brass and Copper Pipe.

## HEATER COIL WITH PIPE HEADERS.

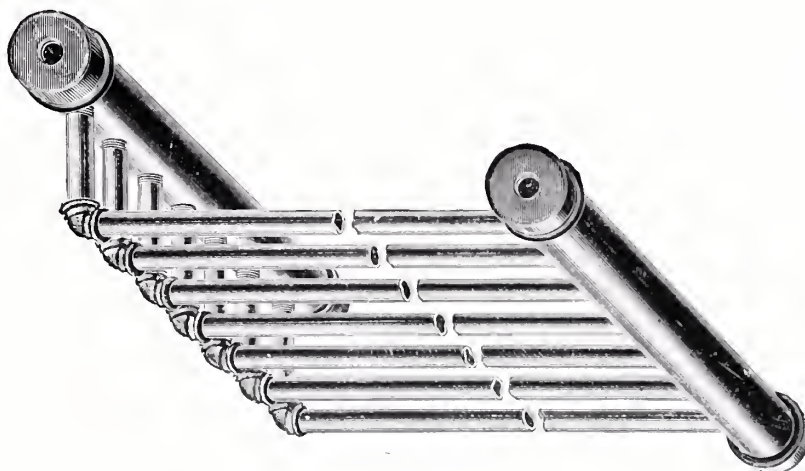


Fig. 172.

Estimates furnished upon application, showing cost of coils ready to put together.

In ordering, give size of supply and return connections, so that caps on ends of headers may be tapped the proper size, or state if supply connection is to be made by the use of some other fitting.

# RAILING FITTINGS.

ELBOW.



Fig. 173.

ELL, SIDE OUTLET.



Fig. 174.

ELL 45°.



Fig. 175.

TEE.



Fig. 176.

TEE, SIDE OUTLET.



Fig. 177.

TEE, 45°.



Fig. 178.

CROSS, 45°.



Fig. 179.

CROSS.



Fig. 180.

CROSS, SIDE OUTLET.



Fig. 181.

FLOOR FLANGE.



Fig. 182.

ACORN ORNAMENT.



Fig. 183.

GATE CENTRE.



Fig. 184.

STAIR LANDING CROSS.

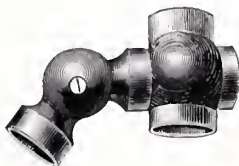


Fig. 185.

STAIR LANDING TEE.



Fig. 186.

STAIR HAND-RAIL  
TEE.

Fig. 187.

For Prices of Railing Fittings, see page 52.

# RAILING FITTINGS.

CONTINUED.

STAIR HAND-RAIL CROSS.

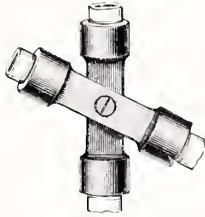


Fig. 188.

ORNAMENTAL COUPLING.



Fig. 189.

FOOT-RAIL BRACKET.

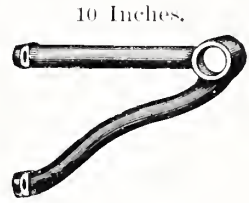


Fig. 190.

FOOT AND HAND-RAIL BRACKET.



Fig. 191.

STAIR HAND-RAIL BRACKET.

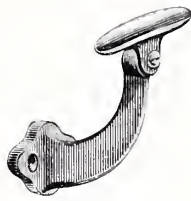


Fig. 192.

HINGE FOR PIPE GATE.



Fig. 193.

IMPROVED HINGE.

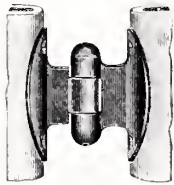


Fig. 194.

ORNAMENTAL HAND-RAIL END.

Drives into Pipe.



Fig. 195.

PIPE GATE LATCH.

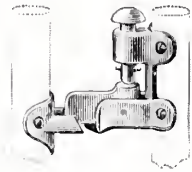


Fig. 196.

END FOR FOOT-RAIL.

Drives into Pipe.



Fig. 197.

SCROLL ORNAMENT.



Fig. 198.

LOAFER CUSHIONS.



Fig. 199.

Foot-Rail Bracket. Screws to Floor or Counter.

For Prices of Railing Fittings, see page 52.



PRICE-LIST OF  
RAILING FITTINGS.

		MALLEABLE FIT- TINGS.						POLISHED BRASS FITTINGS.					
SIZE OF PIPE . . . . . INCHES.		$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Fig. 173.	Ell . . . . .	\$0.10	.15	.20	.35	.45	.72	.40	.60	.80	1.20	1.60	2.20
" 174.	Ell, Side Outlet . . . . .	.12	.18	.25	.40	.50	.80	.75	1.00	1.45	1.65	2.05	2.90
" 175.	Ell 45° . . . . .	...	...	.30	.45	.55	.90	...	...	1.50	1.70	2.15	3.00
" 176.	Tee . . . . .	.12	.18	.25	.40	.50	.75	.60	.85	1.10	1.70	2.00	2.75
" 177.	Tee, Side Outlet . . . . .	.15	.22	.35	.45	.55	.90	1.05	1.25	1.50	2.00	2.30	3.25
" 178.	Tee, 45° . . . . .	...	...	.40	.50	.60	.95	...	...	1.55	2.05	2.40	3.35
" 179.	Cross, 45° . . . . .	...	...	.45	.55	.70	1.15	...	...	1.60	2.20	2.60	3.40
" 180.	Cross . . . . .	.15	.22	.35	.45	.58	1.00	1.05	1.25	1.50	2.00	2.40	3.25
" 181.	Cross, Side Outlet . . . . .	.18	.27	.40	.50	.65	1.35	1.20	1.45	1.70	2.12	2.60	3.50
" 182.	Floor Flange, Plain . . . . .	.12	.12	.15	.20	.28	.30	.26	.35	.40	.70	.95	1.30
" 183.	Acorn Ornament, threaded, Male . . . . .	.10	.15	.20	.25	.35	.90	.40	.65	.80	.90	1.20	2.50
" 184.	Gate Centre Piece . . . . .	...	...	1.00	1.50	...	...	...	...	...	...	...	...
" 185.	Stair Landing Cross . . . . .	...	...	...	1.25	1.60	2.40	...	...	...	...	...	...
" 186.	" " Tee . . . . .	...	...	...	1.10	1.50	2.15	...	...	...	...	...	...
" 187.	" Hand-Rail Tee . . . . .	...	.45	.65	1.00	1.15	...	...	...	...	...	...	...
" 188.	" " Cross . . . . .	...	.65	.80	1.20	1.35	...	...	...	...	...	...	...
" 189.	Ornamental Coupling . . . . .	...	...	.25	.40	...	...	...	...	...	...	...	...
" 190.	Foot-Rail Bracket . . . . .	.40	.50	.70	.80	1.00	1.25	2.50	2.80	3.35	3.70	4.00	5.00
" 191.	Foot and Hand Rail Bracket, single arm . . . . .	.40	.40	.50	.60	.90	1.15	2.25	2.25	2.40	2.75	3.60	4.25
" 192.	Stair Hand-Rail Bracket . . . . .	...	...	...	.50	.50	.50	...	...	...	...	...	...
" 193.	Hinge for Pipe Gate . . . . .	.35	.40	.45	.55	.80	1.00	.90	1.30	1.50	1.90	2.25	3.25
" 194.	" " Improved . . . . .	...	...	.50	.50	.50	.50	...	...	1.75	1.75	1.75	1.75
" 195.	Ornamental Hand-Rail End (drives into pipe) . . . . .	...	...	...	.40	.50	.75	...	...	...	...	...	...
" 196.	Pipe Gate Latch . . . . .	...	...	.65	.65	.65	.65	...	...	...	...	...	...
" 197.	End for Foot-Rail (drives into pipe) . . . . .	.15	.15	.20	.25	.30	.40	.60	.60	.80	1.00	1.20	1.75
" 198.	Scroll Ornament, 50c. each.	...	...	.30	.30	.30	.30	...	...	...	...	...	...
" 199.	Leafer Cushion 18 in. long	...	...	.30	.30	.30	.30	...	...	...	...	...	...

NOTES.

For Galvanized Railing Fittings, double the list prices for same Fittings plain.

To fill orders sent us *without specifying how* Outlets are to be tapped, Fittings will invariably be furnished right-hand.

In ordering these Railing Fittings give Number of our figure, and state whether right-hand or left-hand threads are wanted. Where Fittings are required having both right and left-hand outlets, please fully describe which Outlets are *wanted right-hand* and *which left-hand*. A careful observance of the above will save much trouble and secure the accurate filling of your orders.

The simplest and most convenient plan for putting together a railing like Fig. 201, is to have all the upper Outlets of Fittings in lower rails *tapped left-hand*, and, unless otherwise ordered, Fittings so tapped will always be sent when orders call for Fittings for a 2-rail railing.

As these Fittings do not need to be Steam or Water tight, a sufficiently clean thread to screw up well and make a good job can be made by running a *left-hand tap* into any Outlet *tapped right hand*.

The parts intended to be screwed, or *riveted to outside of Pipe*, as shown in Figures 192, 194, 196, are of malleable iron, and can readily be bent to fit the circle of any size wrought iron or brass pipe.

For illustrations see pages 50 and 51.



RAILING FITTINGS.

CONTINUED.

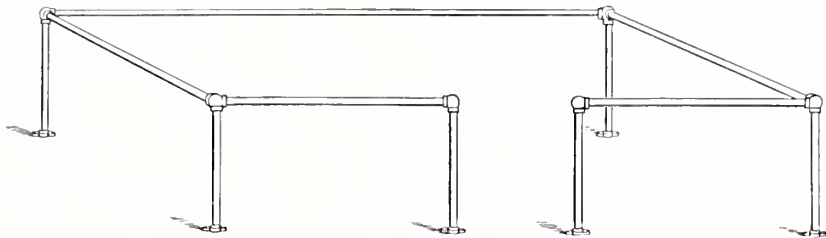


Fig. 200.

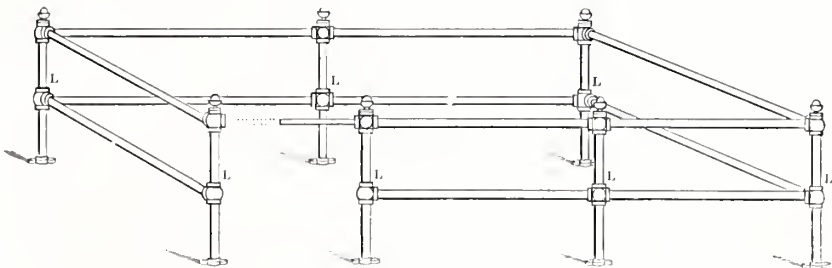


Fig. 201.

We illustrate above two popular styles of Exhibition Railings as erected with our Fittings.

A neat and simple gate can be made by reducing with a bushing the Outlets of the Fittings on each side of the passage-way, and then using a smaller size pipe to slide back and forward inside of the top rail, with a pin to prevent its running back too far. (See dotted line in Fig. No. 201.)

EXPANSION BOLTS.

PRICES PER HUNDRED.

LENGTH . . . . IN.	3	3½	4	4½	5	6	7	8	9	10	11	12
Size.	\$12.50	12.75	13.00	13.25	13.50	14.00	14.50	15.00	. . .	. . .	. . .	. . .
1	. . .	. . .	19.00	19.25	19.50	20.00	20.50	21.00	21.50	22.00	22.75	23.50
	. . .	. . .	26.00	26.50	27.00	28.00	28.75	29.25	30.00	30.75	31.50	32.00
	. . .	. . .	34.50	34.75	35.00	35.50	36.00	37.00	38.00	39.00	40.00	41.00
	. . .	. . .	. . .	. . .	55.00	56.00	57.00	58.00	59.00	60.00	61.00	62.00

AWNING FRAME FIXTURES.

HINGE BRACKET, POST TEE.  
FRONT.




Fig. 202.

HINGE BRACKET, SIDE.




Fig. 205.

HINGE PLATE.

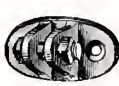


Fig. 204.

RAIL END ACORN.  
Drives into Pipe.




Fig. 206.

RAIL TEE.

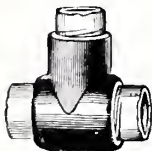


Fig. 207.

BRACE TEE.

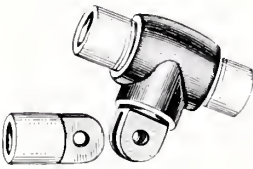


Fig. 208.

HINGE SOCKET.




Fig. 209.

EXTENSION BRACKETS.

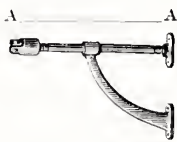


Fig. 210.

HITCHING RING.




Fig. 211.

AWNING BASE.




Fig. 212.

CAST IRON AWNING POST.





Fig. 216.

AWNING TOP.



Tapped here.  
Fig. 213.

WALL EYE.





Fig. 214.

HITCHING POST TOP.

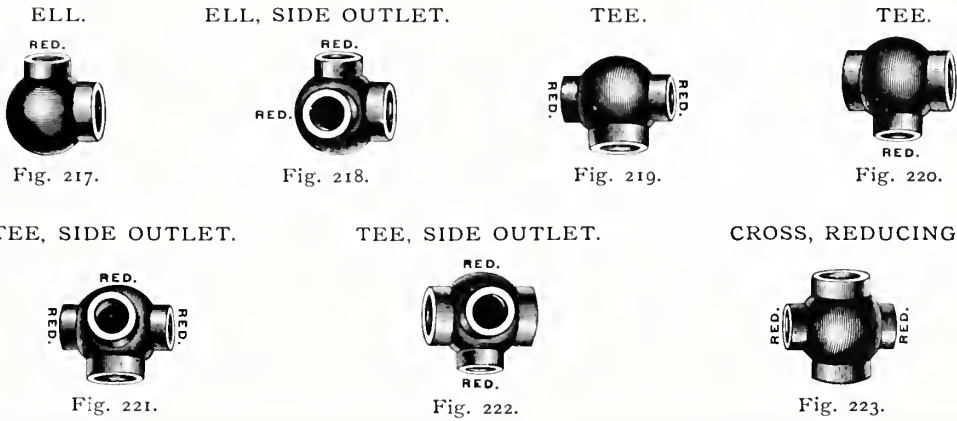


Tapped here.  
Fig. 215.

Fig. 202.	HINGE BRACKET, Front.	For Window Awning Frames, with Sockets for $\frac{1}{4}$ , 13c.; $\frac{3}{8}$ , 13c.; $\frac{1}{2}$ , 15c.; $\frac{3}{4}$ -pipe. (For larger sizes use Figs. 204 and 209.)	\$0.20
Fig. 203.	MALLEABLE POST TEE.	Bottom Tapped for 2, 1 $\frac{1}{4}$ -inch Rail	.65
Fig. 204.	HINGE PLATE (Including Bolts).	One size suits all sizes of Hinge Sockets	.18
Fig. 205.	HINGE BRACKET, Side.	For $\frac{1}{4}$ , 13c.; $\frac{3}{8}$ , 13c.; $\frac{1}{2}$ , 15c.; $\frac{3}{4}$ -pipe	.20
Fig. 206.	RAIL END ACORNS.	For 1-inch, 15c.; 1 $\frac{1}{4}$ -inch Pipe	.22
Fig. 207.	RAIL TEE.	No. 1. For 1-inch Rail tapped for $\frac{3}{4}$ -inch Pipe	.15
	"	No. 2. " 1 $\frac{1}{4}$ " " " " $\frac{3}{4}$ " "	.20
	"	No. 3. " 1 $\frac{1}{4}$ " " " " 1 " "	.20
	"	No. 4. " 1 $\frac{1}{2}$ " " " " 1 $\frac{1}{4}$ " "	.25
Fig. 208.	BRACE TEE.	For $\frac{3}{4}$ , 20c.; 1, 28c.; 1 $\frac{1}{4}$ -inch Pipe	.33
Fig. 209.	HINGE SOCKETS.	$\frac{1}{4}$ galv. 6c.; $\frac{3}{8}$ galv. 6c.; $\frac{1}{2}$ galv. 8c.; $\frac{3}{4}$ blk. 15c.; 1 blk. 15c.; 1 $\frac{1}{4}$ blk.	.25
Fig. 210.	EXTENSION BRACKETS.	For Store Window Awnings. A to A, 8, 9, 10 12, 15 inches	.80
Fig. 211.	HITCHING RING WITH CLIP.	Will suit any size Pipe	.30
Fig. 212.	CAST IRON AWNING BASE.	1 $\frac{1}{2}$ , 1.65; 2-inch Posts	1.80
* Fig. 213.	MALLEABLE IRON AWNING TOP.	1 $\frac{1}{2}$ for 1-inch Rail	.80
	"	" " 2 " 1 $\frac{1}{4}$ " "	1.00
Fig. 214.	WALL EYES (including bolts).	One size suits all sizes of Hinge Sockets	.20
Fig. 215.	HITCHING POST TOP.	2-inch, 1.80; 2 $\frac{1}{2}$ -inch, 2.30; 3-inch	2.60
Fig. 216.	CAST IRON AWNING POST.	For 1 $\frac{1}{2}$ and 2-inch Posts	1.00

\* Figure 213 makes a very neat Fitting for Railing with Posts of 1 $\frac{1}{2}$  or 2-inch Pipe.

REDUCING RAILING FITTINGS.



		IRON FITTINGS.				POLISHED BRASS FITTINGS.			
SIZE . . . . .		1 x ¾	1 ¼ x 1	1 ½ x 1	2 x 1 ¼	1 x ¾	1 ¼ x 1	1 ½ x 1	2 x 1 ¼
Fig. 217. ELL, reducing . . . . .		.80, .25	.44	.56	.90	1.00	1.50	2.00	2.75
Fig. 218. ELL, side outlet reducing . . . . .		.31	.50	.62	1.00	1.80	2.06	2.55	3.62
Fig. 219. TEE, reduced on run . . . . .		.31	.50	.62	1.00	1.37	2.12	2.50	3.45
Fig. 220. TEE, reduced at side . . . . .		.31	.50	.62	1.00	1.37	2.12	2.50	3.45
Fig. 221. SIDE OUTLET TEE, reduced at 3 outlets. . . . .		.44	.56	.70	1.12	1.87	2.50	2.87	4.05
Fig. 222. SIDE OUTLET TEE, reduced at 2 outlets. . . . .		.44	.56	.70	1.12	1.87	2.50	2.87	4.05
Fig. 223. CROSS, reducing . . . . .		.44	.56	.75	1.25	1.87	2.50	3.00	4.05

The word "Red" indicates which outlets are reduced. For Galvanized Railing Fittings, double the list prices for same fittings plain. Our regular Patterns of Railing Fittings are Counter-bored, so that when the pipe is screwed up, no threads are visible.

GAS FITTERS' AUGERS.



Fig. 224.

No. . . . .	1	2	3	4	5	6	7	8	9
Diameter of Auger . . . . .	¾	1	1 ¼	1 ½	1 ¾	2	2 ¼	2 ½	3
For Pipe . . . . .	1	1 ¼	1 ½	1 ¾	2	2 ¼	2 ½	3	3 ½
Price, each. . . . .	.80, .80	1.00	1.12	1.60	1.92	2.25	2.50	3.25	4.00

THE "AMERICAN" LONG SCREW.

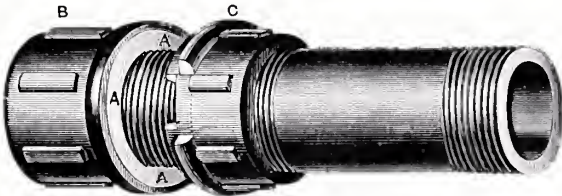


Fig. 225.

SIZE . . . . . INCHES	¾	1	1 ¼	1 ½	2
Length . . . . .	4	4 ½	5	5 ½	6
Price, each . . . . .	.55	.75	1.00	1.50	2.00

MACHINE BOLTS AND NUTS.

SQUARE HEAD AND NUT.

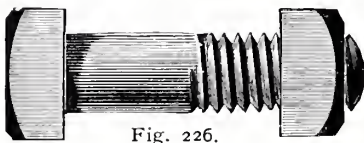


Fig. 226.

HEXAGONAL HEAD AND NUT.

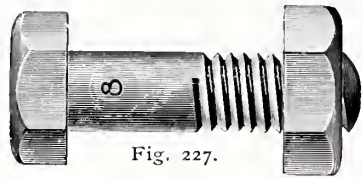


Fig. 227.

PRICES PER HUNDRED.

SIZE . . . . . IN.	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	1	$\frac{1}{2}$	$\frac{9}{16}$ and $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Length, $1\frac{1}{2}$ in. . .	\$2.80	3.20	3.60	4.60	6.00	9.00	12.70	18.80	27.50
2 . . . . .	2.90	3.35	3.80	4.90	6.35	9.55	13.45	19.80	28.80
$2\frac{1}{2}$ . . . . .	3.00	3.50	4.00	5.20	6.70	10.10	14.20	20.80	30.10
3 . . . . .	3.10	3.65	4.20	5.50	7.05	10.65	14.95	21.80	31.40
$3\frac{1}{2}$ . . . . .	3.20	3.80	4.40	5.80	7.40	11.20	15.70	22.80	32.70
4 . . . . .	3.30	3.95	4.60	6.10	7.75	11.75	16.45	23.80	34.00
$4\frac{1}{2}$ . . . . .	3.40	4.10	4.80	6.40	8.10	12.30	17.20	24.80	35.30
5 . . . . .	3.50	4.25	5.00	6.70	8.45	12.85	17.95	25.80	36.60
$5\frac{1}{2}$ . . . . .	3.60	4.40	5.20	7.00	8.80	13.40	18.70	26.80	37.90
6 . . . . .	3.70	4.55	5.40	7.30	9.15	13.95	19.45	27.80	39.20
$6\frac{1}{2}$ . . . . .	3.80	4.70	5.60	7.60	9.50	14.50	20.20	28.80	40.50
7 . . . . .	3.90	4.85	5.80	7.90	9.85	15.05	20.95	29.80	41.80
$7\frac{1}{2}$ . . . . .	4.00	5.00	6.00	8.20	10.20	15.60	21.70	30.80	43.10
8 . . . . .	4.10	5.15	6.20	8.50	10.60	16.20	22.50	31.80	44.40
9 . . . . .	. .	. .	6.60	9.10	11.30	17.30	24.00	33.80	47.00
10 . . . . .	. .	. .	7.00	9.70	12.00	18.40	25.50	35.80	49.60
11 . . . . .	. .	. .	7.40	10.30	12.70	19.50	27.00	37.80	52.20
12 . . . . .	. .	. .	7.80	10.90	13.40	20.60	28.50	39.80	54.80

LAG SCREWS AND LAG SCREW HOOKS.

LAG SCREW HOOK.



Fig. 228.

LAG SCREW.



Fig. 229.

PRICES PER HUNDRED.

DIAMETER . . . . . INCHES.	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$ and $\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Length, $2\frac{1}{2}$ in. . . . .	\$3.50	4.50	5.00	7.05	10.20	. .	. .
3 . . . . .	3.70	4.75	5.35	7.60	10.95	16.00	. .
$3\frac{1}{2}$ . . . . .	3.90	5.00	5.70	8.15	11.70	17.00	22.60
4 . . . . .	4.10	5.25	6.05	8.70	12.45	18.00	24.00
5 . . . . .	4.50	5.75	6.75	9.80	13.95	20.00	26.80
6 . . . . .	4.90	6.25	7.50	10.90	15.50	22.00	29.60
7 . . . . .	. .	6.75	8.20	12.00	17.00	24.00	32.40
8 . . . . .	. .	7.25	8.90	13.10	18.50	26.00	35.20
9 . . . . .	. .	7.75	9.60	14.20	20.00	28.00	38.00
10 . . . . .	. .	. .	10.30	15.30	21.50	30.00	40.80
12 . . . . .	. .	. .	11.70	17.50	24.50	34.00	46.40

SEAMLESS DRAWN BRASS PIPE.  
FOR PLUMBING.

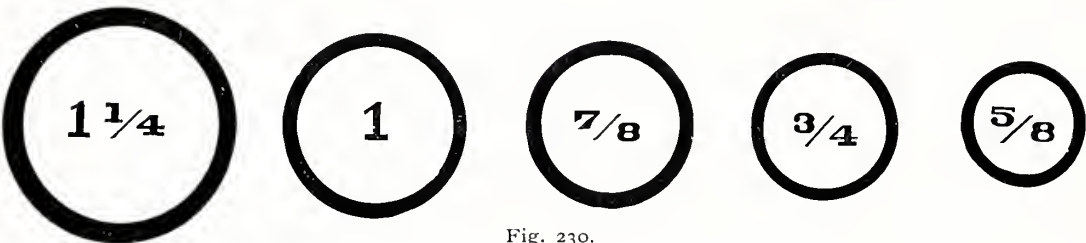


Fig. 230.

SIZE, OUTSIDE DIAMETER. . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{7}{8}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$
Price per foot . . . . .	80.28	.30	.45	.60	.70	.80	1.00	1.35	1.75	2.25

The above tubes are made in 12-foot lengths, with coupling on one end.

SEAMLESS DRAWN BRASS AND  
COPPER TUBES.

IRON PIPE SIZE.

WILL THREAD TO FIT IRON PIPE FITTINGS.

Iron Pipe Size.	Inside Diameter.	Outside Diameter.	Length Feet, about	Approximate Weight per Foot.	
				Brass.	Copper.
$\frac{1}{4}$	.27	$\frac{13}{32}$	12	.30	.31
$\frac{1}{4}$	.36	$\frac{9}{16}$	12	.43	.45
$\frac{3}{8}$	.49	$\frac{11}{16}$	12	.58	.61
$\frac{1}{2}$	.62	$\frac{13}{16}$	12	.80	.84
$\frac{3}{4}$	.82	1 $\frac{1}{16}$	12	1.17	1.23
1	1.04	1 $\frac{3}{16}$	12	1.67	1.75
1 $\frac{1}{4}$	1.38	1 $\frac{5}{8}$	12	2.42	2.54
1 $\frac{1}{2}$	1.61	1 $\frac{7}{8}$	12	2.92	3.07
2	2.06	2 $\frac{1}{8}$	12	4.17	4.38
2 $\frac{1}{2}$	2.46	2 $\frac{3}{4}$	12	5.00	5.25
3	3.06	3 $\frac{1}{2}$	12	8.00	8.40
3 $\frac{1}{2}$	3.50	4	12	10.00	10.50
4	4.02	4 $\frac{1}{2}$	12	12.00	12.00
5	5.04	5.56	8 to 10	15.93	17.30
6	6.06	6.62	6 to 8	20.69	22.38
7	7.02	7.62	Special.	26.28	27.77
8	7.98	8.62	Special.	29.88	33.69

Prices quoted on application.



# FINISHED BRASS FITTINGS.

ELBOW.

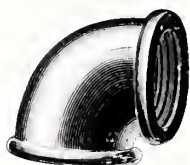


Fig. 231.

REDUCING ELBOW.

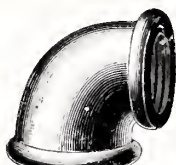


Fig. 232.

45° ELBOW.



Fig. 233.

DROP ELBOW.

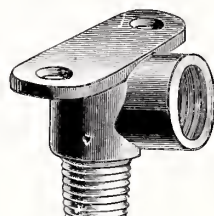


Fig. 234.

TEE.

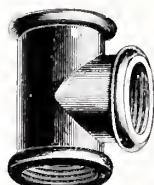


Fig. 235.

REDUCING TEE.

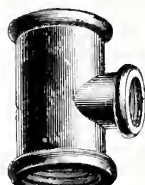


Fig. 236.

CROSS.

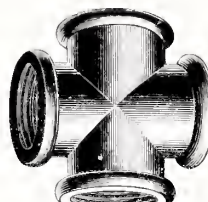


Fig. 237.

CLOSE RETURN  
BEND.

Fig. 238.

PLUG.



Fig. 239.

CAP.



Fig. 240.

REDUCER.



Fig. 241.

COUPLING.



Fig. 242.

LOCKNUT.



Fig. 243.

ROUND BUSHING.



Fig. 244.

HEXAGON BUSHING.



Fig. 245.

Y BRANCH.



Fig. 246.

UNION ELBOW.

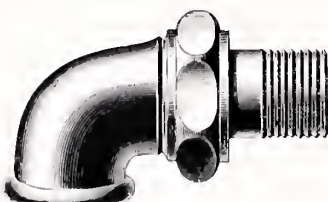


Fig. 247.

GROUND UNION.

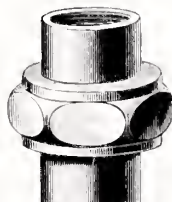


Fig. 248.

MALE AND FEMALE  
ELL.

Fig. 249.

For prices, see page 59.

## BRASS FITTINGS. MALLEABLE PATTERN—ROUGH.

## IRON PIPE THREAD.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
ELBOWS . . . . .	80.12	.17	.21	.28	.35	.50	.85	1.10	1.50	3.50	4.50
“ 45° . . . . .				.36	.70	1.00	1.50	2.00	3.00	5.50	8.50
“ Reducing . . . . .		.20	.24	.32	.40	.58	.98	1.26	1.73	4.00	5.40
“ Union . . . . .					1.75	2.25	2.95	3.70			
“ Side Outlet . . . . .			.40	.50	.70	.80	1.00				
“ Street . . . . .				.55	.75	1.00	1.80				
“ with Ears . . . . .			.38	.47	.71	.90	1.18				
“ “ “ Side Outlet . . . . .			.52	.62	.88	1.05	1.33				
TEES . . . . .	.15	.20	.30	.40	.50	.75	1.00	1.30	1.75	4.00	5.50
“ Reducing . . . . .		.23	.35	.46	.58	.86	1.15	1.50	2.00	4.60	6.30
“ Drop or Cock, Single Ear . . . . .			.52	.52	.78	1.10	1.43				
“ “ “ Double “ . . . . .			.60	.60	.87	1.20	1.55				
“ “ Union . . . . .		.65	.85	1.08	1.50	2.10	2.70	3.40	5.00		
CROSSES . . . . .			.40	.50	.60	.80	1.50	2.00	3.50		
“ Reducing . . . . .			.46	.58	.70	.92	1.72	2.30	4.00	5.75	8.00
“ Side Outlet . . . . .			.60	.80	1.15	1.60	2.00				
COUPLINGS . . . . .	.10	.14	.16	.25	.37	.50	.60	.90	1.35	2.40	3.50
“ Reducing . . . . .		.17	.20	.30	.45	.60	.75	1.12	1.75		
“ Right and Left . . . . .		.17	.20	.30	.45	.60	.75	1.12	1.75		
“ with Ears . . . . .		.17	.20	.30	.45	.60	.75	1.12	1.75		
UNIONS . . . . .	.35	.40	.55	.75	1.00	1.40	1.90	2.75	4.00	6.00	8.50
CAPS . . . . .	.15	.15	.20	.25	.35	.45	.60	.80	1.10	2.00	3.00
PLUGS . . . . .	.09	.10	.12	.15	.20	.28	.40	.50	.90	1.25	2.00
LOCKNUTS . . . . .		.10	.12	.15	.20	.30	.45	.70	.95	1.50	2.75
BUSHINGS . . . . .		.10	.12	.14	.21	.38	.50	.67	1.00	1.50	2.50
NIPPLES, Close . . . . .	.12	.15	.20	.25	.30	.40	.60	.90	1.25	2.50	3.50
“ Shoulder . . . . .	.15	.20	.30	.35	.45	.60	.90	1.25	1.60	3.00	4.50
RETURN BENDS, Close . . . . .				.70	.85	1.00	2.25	2.75	4.50		
“ “ “ Open . . . . .				.75	1.00	1.75	3.00	3.75	6.00		
“ “ “ “ Side Outlet . . . . .			1.20	1.40	2.00						
“ “ “ “ Close “ “ . . . . .			.90	1.10	1.40						
“ “ “ “ Back Outlet . . . . .			.90	1.10	1.40						
“ “ “ “ Open, “ “ . . . . .			1.20	1.40	2.00						
Y BRANCHES . . . . .			.40	.50	.60	.80	1.50	2.00	3.50		
“ “ “ Heavy . . . . .				.90	1.30	1.80	2.75	4.00	5.25	9.00	14.00
ACORN CAPS . . . . .	.15	.15	.20	.25	.40	.45	.65	.84	1.25		

## FINISHED BRASS FITTINGS.

## IRON PIPE THREAD.

SIZE . . . . . INCHES	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
ELBOWS . . . . .	80.15	.18	.24	.35	.45	.65	1.10	1.50	2.50	3.75	6.55
“ 45° . . . . .		.20	.25	.30	.40	.50	.70	1.20	1.60	2.70	4.00
Y BRANCH . . . . .		.30	.35	.55	.70	.85	1.25	1.90	2.50	3.50	6.25
TEES . . . . .	.20	.25	.35	.50	.65	1.00	1.50	2.00	2.75	5.50	8.00
“ Drop or Cock . . . . .			1.04	1.04	1.56	2.20	2.86				
CROSSES . . . . .	.30	.35	.55	.70	.85	1.25	1.90	2.50	3.50	6.25	9.50
LOCKNUTS . . . . .	.10	.10	.12	.18	.23	.30	.45	.55	1.00	1.90	3.00
PLUGS . . . . .	.10	.12	.15	.20	.25	.30	.50	.70	1.20	2.00	3.00
CAPS . . . . .	.13	.15	.20	.25	.35	.45	.70	.85	1.55	2.50	3.75
COUPLINGS . . . . .	.13	.15	.20	.25	.35	.45	.70	.85	1.55	2.50	3.75
RETURN BENDS, Close . . . . .				.60	.90	1.20	1.75	2.75	3.75		
“ “ “ Open . . . . .				.70	1.00	1.30	2.00	3.00	4.00		
NIPPLES, Shoulder . . . . .	.20	.25	.35	.40	.50	.70	1.00	1.35	1.70	3.50	6.75

For price of Reducing Fittings add 25 per cent. to regular List.

Finished Fittings nickel plated when desired.

SQUARE

ROUND BUSHING.

HEXAGON BUSHING.

Y BRANCH.



Fig. 243.

UNION ELBOW.



Fig. 244.



Fig. 245.



Fig. 246.

GROUND UNION.

MALE AND FEMALE  
ELL.

Fig. 247.



Fig. 248.



Fig. 249.

For prices, see page 59.

BRASS FITTINGS.  
MALLEABLE PATTERN—ROUGH.

IRON PIPE THREAD.

SIZE . . . . . INCHES	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
ELBOWS . . . . .	80.10	.12	.16	.25	.35	.50	.85	1.15	1.50	3.50	5.00	9.50	15.50
" 45 . . . . .		.21	.30	.40	.55	.95	1.25	2.25	3.40	6.00	10.50	17.00	
" Reducing . . . . .	.13	.15	.20	.32	.45	.65	1.05	1.40	1.80	3.60	6.00		
" Union . . . . .		.82	1.00	1.50	2.00	2.60	3.50	5.00					
" Side Outlet . . . . .		.40	.50	.70	.80	1.00							
" Drop, Cock or Street . . . . .		.60	.60	.80									
TEES . . . . .	.12	.15	.20	.30	.45	.70	1.00	1.25	1.75	4.00	6.00	12.00	19.50
" Reducing . . . . .	.15	.16	.25	.38	.56	.87	1.20	1.50	2.10	4.80	7.20		
" Union . . . . .		.85	1.08	1.50	2.10	2.70	3.40	5.00					
" Drop or Cock . . . . .		.52	.52	.78	1.10	1.43							
CROSSES . . . . .	.15	.20	.30	.40	.55	.80	1.15	1.40	1.95	4.25	6.50	16.00	26.00
" Reducing . . . . .	.20	.25	.37	.50	.68	1.00	1.40	1.70	2.35	5.10	7.80		
REDUCING COUPLINGS . . . . .		.12	.18	.25	.35	.45	.70	.90	1.50	2.25	3.25	6.50	11.00
PLUGS . . . . .	.06	.08	.10	.15	.20	.25	.40	.50	.90	1.50	2.25	5.50	9.00
CAPS . . . . .	.08	.10	.15	.20	.30	.40	.60	.75	1.25	2.00	3.00	5.50	9.00
LOCKNUTS . . . . .	.08	.08	.10	.15	.20	.25	.40	.50	.90	1.75	2.75	3.75	6.00
BUSHINGS . . . . .		.07	.09	.13	.21	.38	.50	.67	.84	1.50	2.50		
COUPLINGS . . . . .	.08	.10	.15	.20	.30	.40	.60	.75	1.25	2.00	3.00	5.50	9.00
" Right and Left . . . . .		.12	.18	.25	.35	.45	.65	.80	1.35	2.10	3.10	5.75	9.50
UNIONS . . . . .	.35	.40	.55	.75	1.00	1.40	1.90	2.75	4.00	6.00	8.50		
NIPPLES, Radiator, Hex. Cen. . . . .				.30	.30	.45	.75	1.00	1.25				
" Close . . . . .	.12	.15	.20	.25	.30	.40	.60	.90	1.25	2.50	5.00		
" Long . . . . .	.15	.20	.30	.35	.45	.60	.90	1.25	1.60	3.00	6.00	7.00	8.50
RETURN BENDS, Close . . . . .				.40	.70	.90	1.25	2.00	2.75				
" " Open . . . . .				.50	.80	1.00	1.50	2.25	3.00				

For Illustrations, see pages 35, 36 and 37.

FINISHED BRASS FITTINGS.  
IRON PIPE THREAD.

SIZE . . . . . INCHES	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
ELBOWS . . . . .	80.15	.18	.24	.35	.45	.65	1.10	1.50	2.50	3.75	6.55
" 45 . . . . .		.20	.25	.30	.40	.50	.70	1.20	1.60	2.70	4.00
Y BRANCH . . . . .		.30	.35	.55	.70	.85	1.25	1.90	2.50	3.50	6.25
TEES . . . . .		.20	.25	.35	.50	.65	1.00	1.50	2.00	2.75	5.50
" Drop or Cock . . . . .				1.04	1.04	1.56	2.20	2.86			8.00
CROSSES . . . . .		.30	.35	.55	.70	.85	1.25	1.90	2.50	3.50	6.25
LOCKNUTS . . . . .		.10	.10	.12	.18	.23	.30	.45	.55	1.00	1.90
PLUGS . . . . .		.10	.12	.15	.20	.25	.30	.50	.70	1.20	2.00
CAPS . . . . .		.13	.15	.20	.25	.35	.45	.70	.85	1.55	2.50
COUPLINGS . . . . .		.13	.15	.20	.25	.35	.45	.70	.85	1.55	2.50
RETURN BENDS, Close . . . . .					.60	.90	1.20	1.75	2.75	3.75	
" " Open . . . . .					.70	1.00	1.30	2.00	3.00	4.00	
NIPPLES, Shoulder . . . . .		.20	.25	.35	.40	.50	.70	1.00	1.35	1.70	3.50

For price of Reducing Fittings add 25 per cent. to regular List.  
Finished Fittings nickel plated when desired.



BRASS FITTINGS.  
CAST IRON PATTERN — ROUGH.

IRON PIPE THREAD.

SIZE . . . . .	INCHES.	$\frac{5}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Elbows . . . . .		\$0.28	.36	.70	1.00	1.50	2.00	3.00	5.50	8.50
“ Reducing Sizes . . . . .		.32	.42	.80	1.15	1.72	2.30	3.45	6.30	9.75
“ Right and Left . . . . .		.32	.42	.80	1.15	1.72	2.30	3.45	6.30	9.75
“ 45° . . . . .			.36	.70	1.00	1.50	2.00	3.00	5.50	8.50
Tees . . . . .		.40	.65	1.00	1.35	2.00	3.00	4.50	7.50	11.00
“ Reducing . . . . .		.46	.75	1.15	1.55	2.30	3.45	5.20	8.60	12.65
Crosses . . . . .			.90	1.30	1.80	2.75	4.00	5.25	9.00	14.00
“ Reducing . . . . .			1.04	1.50	2.10	3.15	4.60	6.00	10.35	16.00
Return Bends, Close . . . . .			.70	.85	1.00	2.25	2.75	4.50	. . .	. . .
“ “ Open . . . . .			.75	1.00	1.75	3.00	3.75	6.00	. . .	. . .

Caps, Locknuts, Reducing Couplings and Unions furnished from Cast Iron patterns when desired, at special prices. For illustrations, see pages 16 to 19.

MALLEABLE PATTERN — ROUGH.  
FINE THREAD.

SIZE . . . . .	INCHES.	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Elbows . . . . .		\$0.26	.35	.48	.53	.65	.85	1.30
“ Union . . . . .		.82	1.00	1.20	1.50	2.00	2.60	4.00
“ Side Outlet . . . . .		.40	.50	.60	.70	.80	1.00	. . .
“ 45° . . . . .		.35	.40	.55	.60	.75	.96	1.40
Tees . . . . .		.30	.40	.55	.60	.85	1.10	1.60
“ Union . . . . .		.85	1.08	1.30	1.50	2.10	2.70	4.00
Crosses . . . . .		.45	.60	.85	.90	1.25	1.65	2.00
Reducing Couplings . . . . .		.30	.40	.50	.55	.70	.84	1.25
Plugs . . . . .		.20	.25	.35	.40	.45	.65	1.00
Caps . . . . .		.20	.25	.35	.40	.45	.65	1.00
Bushings, Plain . . . . .		.15	.20	.25	.30	.35	.40	.70
“ Hexagon . . . . .		.20	.25	.35	.40	.45	.60	.90
Couplings . . . . .		.20	.25	.35	.40	.45	.65	1.00
Unions . . . . .		.56	.68	.80	1.00	1.34	1.84	3.00
Cock Elbows . . . . .		.60	.60	.70	.80	. . .	. . .	. . .
“ Tees . . . . .		.52	.52	.72	.78	1.10	1.43	. . .
Close Nipples . . . . .		.20	.25	.35	.40	.45	.65	1.00
Locknuts . . . . .		.12	.14	.16	.18	.24	.30	.44
Cock U's . . . . .		1.75	1.75	2.00	2.50	. . .	. . .	. . .
“ “ Wide . . . . .		2.25	2.25	2.50	3.25	. . .	. . .	. . .
Circulating U's . . . . .		.90	1.10	1.25	1.40	. . .	. . .	. . .
“ “ Wide . . . . .		1.20	1.40	1.55	2.00	. . .	. . .	. . .
Acorns . . . . .		.20	.25	.35	.40	.45	.65	1.00
“ Hexagon . . . . .		.24	.30	.40	.46	.54	.75	1.20
Return Bends, Close . . . . .		.70	.80	1.00	1.20	. . .	. . .	. . .
“ “ Wide . . . . .		.82	.92	1.20	1.50	. . .	. . .	. . .

See Cast Iron or Malleable List for illustrations.  
For length of Nipples see List on Iron Pipe Nipples, page 22.  
Fittings finished and plated at short notice, also any special fittings furnished not listed.



## STANDARD IRON BODY GLOBE VALVES.

## BRASS MOUNTED—PLAIN.

SCREWED.

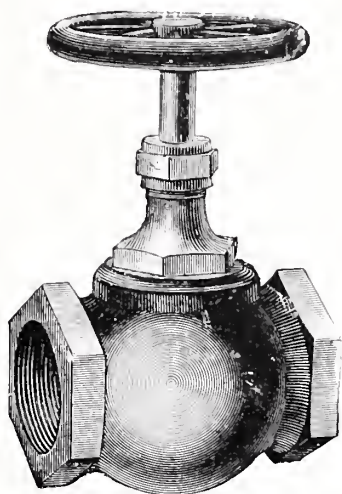


Fig. 250.

FLANGED.

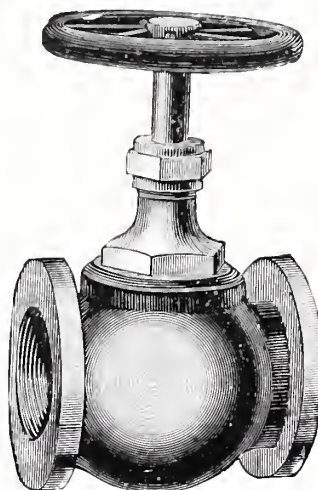


Fig. 251.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed, each . . . . .	\$1.40	1.50	1.60	1.75	2.00	2.50	3.50	5.00	7.50	10.50
Flanged, each . . . . .			2.25	2.50	3.00	3.75	5.00	6.75	9.50	13.50
Diameter of Flange . . . . . Inches.			3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$6\frac{1}{2}$	7	8

## BRASS MOUNTED—WITH YOKE.

SCREWED.

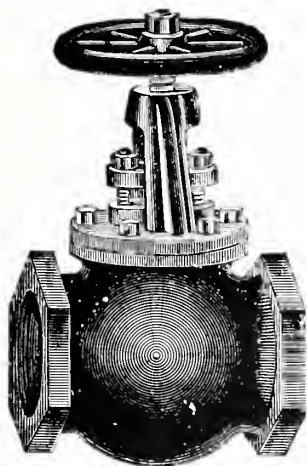


Fig. 252.

FLANGED.

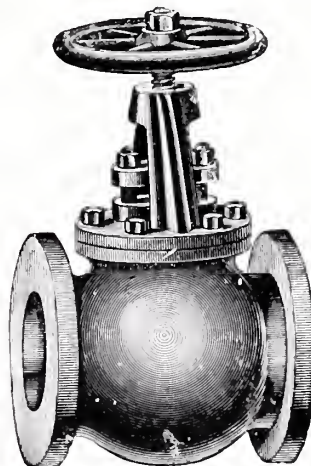


Fig. 253.

SIZE . . . . . INCHES.	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Screwed, each . . . . .	\$8.00	10.50	14.50	18.00	21.00	28.00	32.00	44.00	...	85.00	135.00	200.00
Flanged, each . . . . .	9.75	12.50	17.50	21.50	25.00	32.00	36.00	49.00	80.00	91.00	145.00	220.00
Diameter of Flange, In.	$6\frac{1}{2}$	7	8	9	10	10	11	12	13	14	16	19

For prices of Patent Seat Valves, see page 64.

STANDARD IRON BODY ANGLE VALVES.

BRASS MOUNTED—PLAIN.

SCREWED.



Fig. 254.

FLANGED.



Fig. 255.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed, each . . . . .	\$1.40	1.50	1.60	1.75	2.00	2.50	3.50	5.00	7.50	10.50
Flanged, each . . . . .			2.25	2.50	3.00	3.75	5.00	6.75	9.50	13.50
Diameter of Flange . . . . . Inches.		3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$6\frac{1}{2}$	7	8	

BRASS MOUNTED—WITH YOKE.

SCREWED.

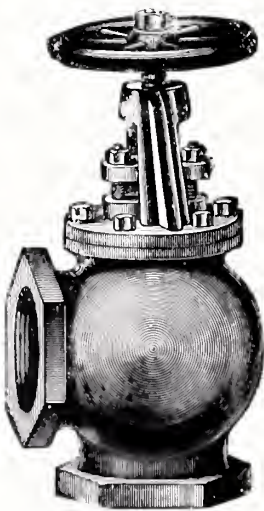


Fig. 256.

FLANGED.

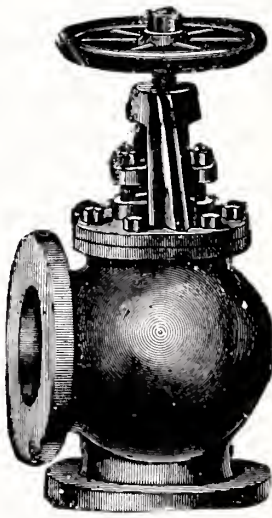


Fig. 257.

SIZE . . . . . INCHES.	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Screwed, each . . . . .	\$8.00	10.50	14.50	18.00	21.00	28.00	32.00	44.00	75.00	85.00	135.00	200.00
Flanged, each . . . . .	9.75	12.50	17.50	21.50	25.00	32.00	36.00	49.00	80.00	91.00	145.00	220.00
Diameter of Flange . In.	$6\frac{1}{2}$	7	8	9	10	10	11	12	13	14	16	19

For prices of Patent Seat Valves, see page 64.

STANDARD IRON BODY CROSS VALVES.  
BRASS MOUNTED.

SCREWED ENDS.

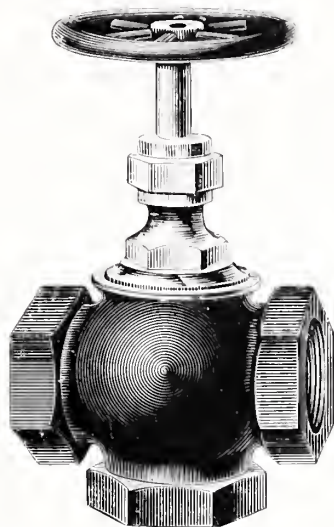


Fig. 258.

FLANGED ENDS.

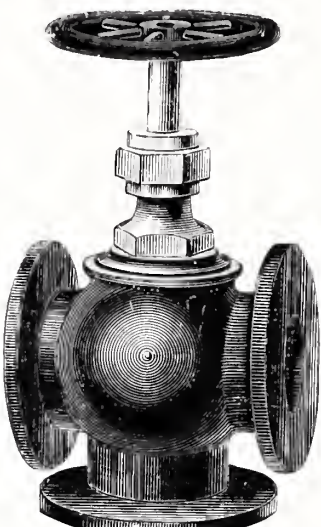


Fig. 259.

SIZE . . . . . INCHES.	1	1½	1½	2	2½	3
Screwed, each . . . . .	83.00	3.50	4.75	6.50	10.00	14.00
Flanged, each . . . . .	4.50	5.50	7.00	9.00	13.00	18.50
Diameter of Flange . . . . . Inches.	4	4½	5	6½	7	8

YOKE TOP.

SCREWED.

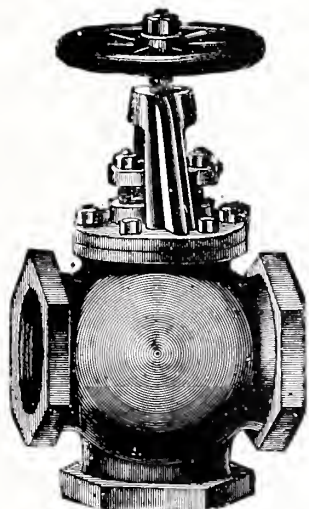


Fig. 260.

FLANGED.

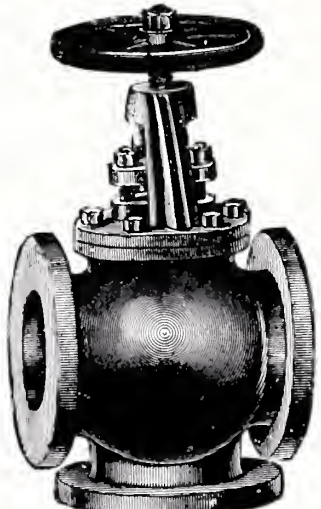


Fig. 261.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed, each . . . . .	89.50	13.00	18.00	23.00	27.00	35.00	40.00	54.00	90.00	105.00	175.00	260.00
Flanged, each . . . . .	12.00	16.00	22.50	28.25	33.00	41.00	46.00	61.50	95.00	114.00	190.00	290.00
Diameter of Flange . . . In.	6½	7	8	9	10	10	11	12	13	14	16	19

For prices of Patent Seat Valves, see page 64.



PATENT SEAT IRON BODY VALVES.

GLOBE, ANGLE AND CROSS.

SCREWED AND FLANGED.

JENKINS SEAT VALVES.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Globe, Screwed . . . . .	\$7.25	11.00	16.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Angle, " . . . . .	7.25	11.00	16.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Globe, Screwed, with Yoke, .	10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00	130.00	185.00
Angle, " . . . . .	10.00	12.00	16.75	19.50	24.00	32.00	40.00	48.00	80.00	90.00	130.00	185.00
Cross, " . . . . .	. . . . .	16.00	21.00	26.00	30.00	42.00	45.00	58.00	. . . . .	. . . . .	. . . . .	. . . . .
Globe, Flanged . . . . .	8.50	13.00	18.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Angle, " . . . . .	8.50	13.00	18.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Cross, " . . . . .	. . . . .	19.00	24.00	29.00	33.00	45.00	48.00	62.00	. . . . .	. . . . .	. . . . .	. . . . .
Globe, Flanged, with Yoke, .	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00	130.00	185.00
Angle, " . . . . .	11.75	14.00	18.50	21.50	26.00	34.00	42.00	50.00	80.00	90.00	130.00	185.00
Cross, " . . . . .	. . . . .	19.00	24.00	29.00	33.00	45.00	48.00	62.00	. . . . .	. . . . .	. . . . .	. . . . .
Diameter of Flange . . . In.	6½	7	8	9	10	10	11	12	13	14	16	19

ASBESTOS DISC SEAT VALVES.

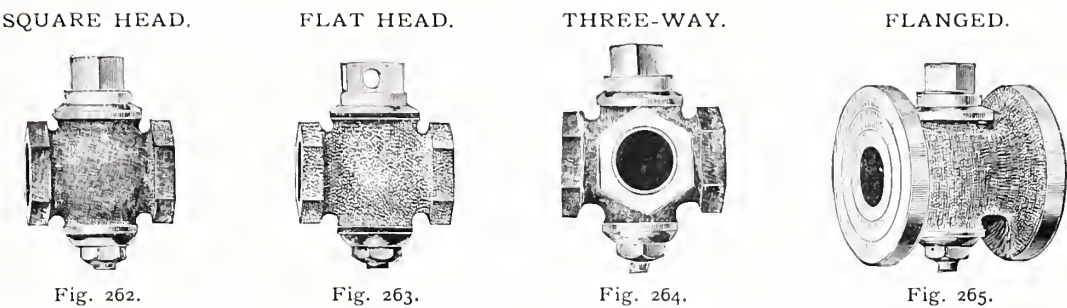
SIZE . . . . . INCHES.	2	2½	3	3½	4	5	6	7	8	10	12
Globe, Screwed . . . . .	\$7.25	11.00	16.00	18.50	23.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Angle, " . . . . .	7.25	11.00	16.00	18.50	23.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Cross, " . . . . .	14.00	16.00	21.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Globe, Screwed, with Yoke, .	10.00	12.00	16.75	19.50	24.00	40.00	48.00	80.00	90.00	130.00	185.00
Angle, " . . . . .	10.00	12.00	16.75	19.50	24.00	40.00	48.00	80.00	90.00	130.00	185.00
Cross, " . . . . .	14.00	16.00	21.00	26.00	30.00	45.00	58.00	. . . . .	. . . . .	. . . . .	. . . . .
Globe, Flanged . . . . .	8.50	13.00	18.00	20.50	25.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Angle, " . . . . .	8.50	13.00	18.00	20.50	25.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Cross, " . . . . .	17.50	19.00	24.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Globe, Flanged, with Yoke, .	11.75	14.00	18.50	21.50	26.00	40.00	50.00	80.00	90.00	130.00	185.00
Angle, " . . . . .	11.75	14.00	18.50	21.50	26.00	42.00	50.00	80.00	90.00	130.00	185.00
Cross, " . . . . .	17.00	19.00	24.00	29.00	33.00	48.00	62.00	. . . . .	. . . . .	. . . . .	. . . . .
Diameter of Flange . . . In.	6½	7	8	9	10	11	12	13	14	16	19

ALL IRON VALVES—For Ammonia and Chemicals.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe and Angle, Screwed . . .	\$2.75	3.00	3.25	3.50	4.00	4.50	5.50	7.00	9.50	12.50
Globe and Angle, Flanged . . .	. .	. .	3.90	4.25	5.00	5.75	7.00	8.75	11.50	15.50
Jenkins, Screwed . . . . .	. .	. .	3.25	3.50	3.75	4.00	4.25	5.25	11.00	13.25
Jenkins, Flanged . . . . .	. .	. .	4.10	4.25	4.50	4.75	5.25	6.50	12.50	14.50
SIZE . . . . . INCHES.	. .	. .	. .	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8
Jenkins, Screwed . . . . .	. .	. .	. .	\$15.50	17.50	25.75	27.00	33.25	43.25	52.00
Jenkins, Flanged . . . . .	. .	. .	. .	16.75	19.25	27.50	29.00	35.50	46.25	56.25

IRON COCKS.

ALL IRON AND BRASS PLUGS.



IRON COCKS, BRASS PLUGS—Figs. 262, 263, 264 and 265.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Screwed . . . . .	\$1.00	1.10	1.20	1.60	2.00	2.75	4.00	5.00	9.50	13.50	30.00	40.00	70.00	95.00
Flanged . . . . .				2.35	3.00	4.00	5.50	6.75	11.50	16.50	33.50	44.00	75.00	101.00
Three-Way, Screwed . . . . .				2.00	2.50	3.25	4.75	6.50	11.00	15.50	33.00	44.00		
Three-Way, Flanged . . . . .				3.00	4.00	5.00	7.00	9.00	14.00	20.00	38.25	50.00		

ALL IRON COCKS—Figs. 262, 263, 264 and 265.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Screwed . . . . .	\$0.70	.75	.80	.90	1.25	1.50	2.00	2.60	4.50	6.50	12.00	16.00	33.00	45.00
Flanged . . . . .				1.65	2.25	2.75	3.50	4.35	6.50	9.50	15.50	20.00	37.00	50.00
Three-Way, Screwed . . . . .				1.30	1.75	2.00	2.75	4.00	6.00	8.50	15.00	20.00	40.00	55.00
Three-Way, Flanged . . . . .				2.30	3.25	3.75	5.00	6.50	9.00	13.00	20.25	26.00	46.00	61.00
Brass Washers, Extra . . . . .	.10	.10	.10	.10	.15	.25	.25	.40	.50	1.00	2.00	3.50	6.00	8.00

EXTRA HEAVY IRON COCKS, BRASS OR IRON PLUGS—Figs. 262 and 263.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
All Iron . . . . .	\$1.00	1.25	1.75	2.25	3.00	4.50
Brass Plug . . . . .	1.50	2.00	2.50	3.50	5.00	7.00

ROUND WAY IRON COCKS, BRASS OR IRON PLUGS—Figs. 262 and 263.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
All Iron . . . . .	\$1.50	1.75	2.50	3.25	4.25	6.00
Brass Plug . . . . .	2.25	2.75	3.75	5.25	8.00	10.00



IRON COCKS—CONTINUED.

ASBESTOS PACKED.

ASBESTOS PACKED COCK.

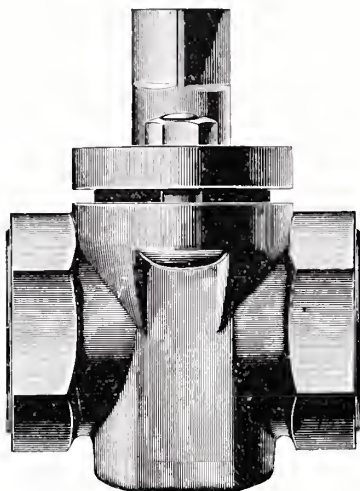


Fig. 266.

ASBESTOS PACKED COCK — FLANGED.

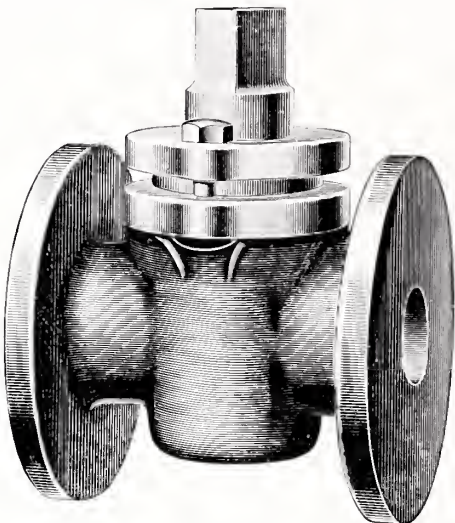


Fig. 267.

SCREWED, FLANGED AND GLAND ENDS — Figs. 266, 267, 268 and 269.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	5	6
Regular, Screwed and Flanged . .	\$1.30	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00	27.00	30.00	45.00	60.00
Stop and Waste, Sed. and Flanged	1.30	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00	...	...	...	...
Extra Heavy, Sed. and Flanged . .	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00	27.00	30.00	45.00	...	...
For Superheated Steam, S. and F.	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00	27.00	30.00	45.00	60.00	...
With Worm and Gear, S. and F.	...	...	...	...	...	...	...	18.00	25.00	30.00	35.00	45.00	65.00	75.00
For Ammonia, Screwed . . . . .	1.30	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00	27.00	30.00	45.00	...
For Ammonia, Gland . . . . .	1.45	1.60	2.10	2.50	3.50	4.75	7.00	12.00	18.00	27.00	...	...	...	...
Three-Way Cocks, "A & B" Pat., S.	3.00	3.25	3.75	5.25	7.25	10.00	18.00	25.00	30.00	35.00	50.00	...	...	...
Brass Cocks, Screwed . . . . .	2.00	2.25	2.50	3.15	4.20	6.00	7.75	12.00	20.00	28.00	...	...	...	...
Iron Cock Wrenches . . . . .	.10	.10	.10	.20	.20	.30	.40	.50	1.00	1.50	1.60	1.75	...	...

WITH GLAND—FOR AMMONIA.

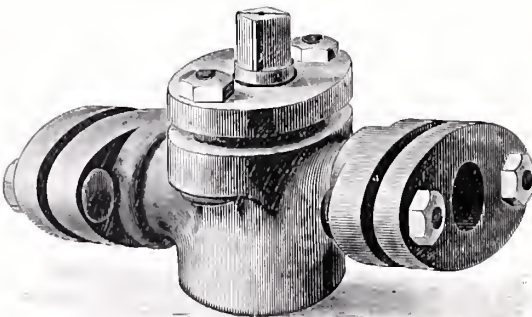


Fig. 268.

ASBESTOS PACKED COCK,  
WITH STOP AND WASTE.

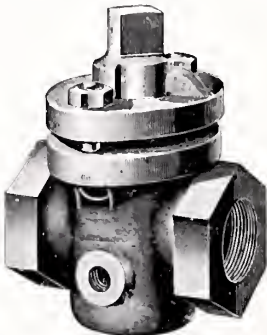


Fig. 269.

IRON BODY CHECK VALVES.

GLOBE, ANGLE AND VERTICAL.  
SCREWED AND FLANGED.

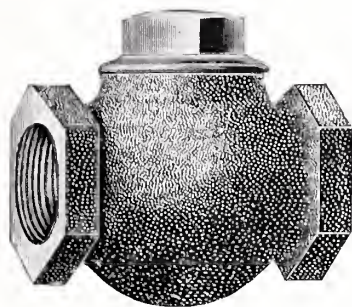


Fig. 270.

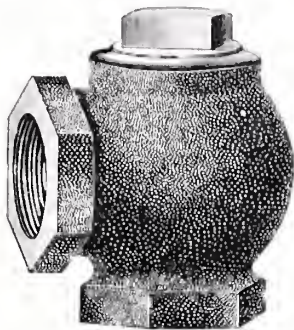


Fig. 271.



Fig. 272.

IRON BODY, BRASS MOUNTED—Figs. 270, 271 and 272.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed . . . . .	83.75	6.25	9.75	12.75	15.00	20.00	24.00	33.00	55.00	65.00	110.00	170.00
Flanged . . . . .	5.50	8.25	12.75	16.25	19.00	24.00	28.00	38.00	60.00	71.00	120.00	190.00
Diameter Flange, Inches.	6½	7	8	9	10	10	11	12	13	14	16	19

IRON BODY, BRASS MOUNTED—Figs. 270, 271 and 272.  
JENKINS SEAT.

SIZE . . . . . INCHES.	2½	3	3½	4	5	6
Screwed . . . . .	810.50	14.00	17.00	20.00	30.00	40.00
Flanged . . . . .	12.50	16.50	20.00	23.00	33.00	43.00
Diameter Flange . . . . . Inches.	7	8	9	10	11	12

Jenkins Seat Vertical Check Valve same List as Globe and Angle with Jenkins Seat.

VERTICAL CHECK VALVE—CAP ON SIDE.  
IRON BODY, BRASS MOUNTED.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8
Screwed . . . . .	84.75	7.50	11.25	14.50	17.00	22.00	26.50	36.00	58.00	69.00
Flanged . . . . .	6.50	9.50	14.25	18.00	21.00	26.00	30.50	41.00	63.00	75.00
Diameter Flange . . . . . Inches.	6½	7	8	9	10	10	11	12	13	14

ALL IRON CHECK VALVES.

SIZE . . . . . INCHES.	¼	⅜	½	¾	1	1¼	1½	2	2½	3
Globe, Screwed . . . . .	82.25	2.50	2.75	3.00	3.25	3.75	4.25	5.75	8.00	11.00
Globe, Flanged . . . . .	..	..	3.40	3.75	4.25	5.00	5.75	7.50	10.00	14.00

IRON BODY CHECK VALVES—CONTINUED.

SWINGING CHECK—SCREWED AND FLANGED.

BRASS MOUNTED.

SWING CHECK VALVE.

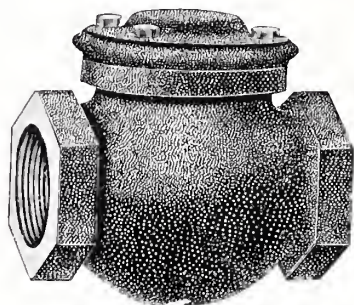


Fig. 273.

PRATT & CADY SWING CHECK.

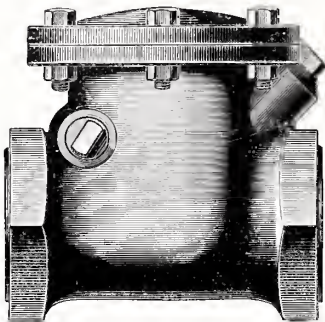


Fig. 274.

SWING CHECK VALVE—Fig. 273.

SIZE . . . . . INCHES.	2	2½	3	3½	4	5	6	7	8	10	12
Fig. 273, Screwed and Flanged	\$6.25	10.00	12.00	16.00	18.00	25.00	32.00	41.00	50.00	65.00	95.00

PRATT & CADY SWING CHECK—Screwed, Flanged and Hub Ends—Fig. 274.

SIZE . . . . . INCHES.	2	2½	3	3½	4	5	6	7	8	10	12
Screwed and Flanged . . . . .	\$6.25	10.00	12.00	16.00	18.00	25.00	32.00	41.00	50.00	65.00	95.00
Hub Ends . . . . .	6.25	..	12.00	..	18.00	25.00	32.00	41.00	50.00	65.00	95.00

LUDLOW CHECK VALVE.

SIZE . . . . . INCHES.	2½	3	3½	4	5	6	8	10	12
Screwed . . . . .	\$7.75	9.75	14.50	20.50	25.50	31.00	44.50	77.50	97.00
Flanged . . . . .	..	11.00	15.50	21.50	27.00	32.50	46.00	76.50	95.00
Hub Ends . . . . .	..	10.25	14.25	20.50	25.00	28.50	43.00	73.00	92.00
Diameter Flange . . . . . Inches.	7	8	8½	9	10	11	13	16	18

ROUSE CHECK VALVE.

SIZE . . . . . INCHES.	2½	3	3½	4	5	6	8	10
Screwed . . . . .	\$10.00	12.00	16.00	18.00	25.00	..	..	..
Flanged . . . . .	11.25	16.00	..	25.00	40.00	50.00	110.00	130.00
Diameter Flange . . . . . Inches.	7	7½	8½	9	10	11	13	16



# IRON BODY VERTICAL CHECK VALVES.

## SCREWED AND FLANGED ENDS.

VERTICAL CHECK VALVE.  
EIGHT INCHES AND SMALLER.

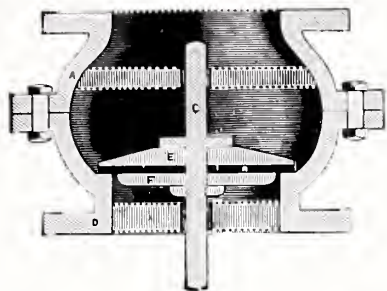


Fig. 275.

VERTICAL CHECK VALVE.  
TEN INCHES AND LARGER.

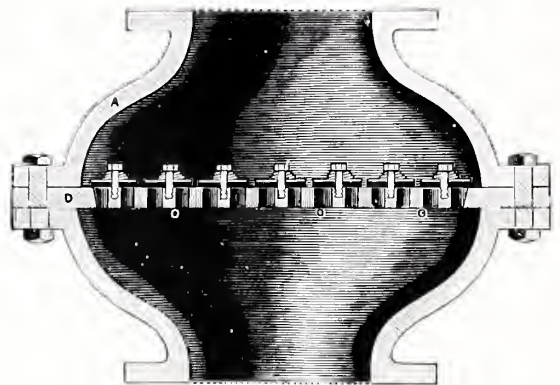


Fig. 276.

SIZE . . . . . INCHES.	2	2½	3	4	5	6	8	10	12
Fig. 275. Screwed Ends, each . . . . .	\$7.50	8.00	12.70	16.50	22.50	29.00	37.00	\$3.50	108.00
Flanged " " . . . . .	8.00	8.50	12.70	16.50	22.00	28.00	36.50	83.50	108.00
Hub Ends, each . . . . .	8.00	8.50	12.70	16.50	22.00	30.00	39.00	85.50	110.00
Diameter of Flange . . . Inches.	6½	7	8	9	10	11	13	16	18

SIZE . . . . . INCHES.	10	12	14	16	18	20	24	30
Fig. 276. Flanged Ends, each . . . . .	\$83.50	108.00	150.00	200.00	240.00	275.00	420.00	800.00
Hub Ends, each . . . . .	85.50	110.00	152.00	203.00	243.00	278.00	425.00	810.00
Diameter of Flange . . . . Inches.	16	18	21	23	25	27	31	38

## IRON BODY HORIZONTAL CHECK VALVES.

SIXTEEN INCHES AND SMALLER.

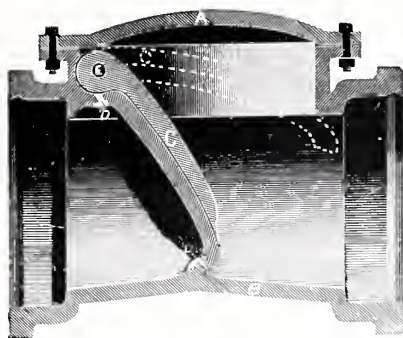


Fig. 277.

EIGHTEEN INCHES AND LARGER.

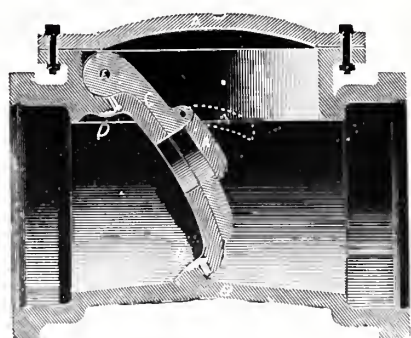


Fig. 278.

SIZE . . . INCHES.	2½	3	3½	4	5	6	8	10	12	14	16	18	20	24	30
Screwed Ends . . .	7.75	9.75	14.50	20.50	25.50	31.00	44.50	77.50	97.00						
Flanged Ends . . .	11.00	15.50	21.50	27.00	27.00	46.00	76.50	95.00	150.00	165.00	230.00	285.00	400.00	1200.00	
Hub Ends . . . . .	10.25	14.25	20.50	25.00	28.50	43.00	73.00	92.00	146.00	160.00	225.00	280.00	390.00	1120.00	

Figs. 277 and 278 Check Valves, 14 inch and larger, are made with By-Pass Valves.



IRON BODY VALVES.

SCREWED AND FLANGED—BRASS MOUNTED.

BUTTERFLY VALVE.

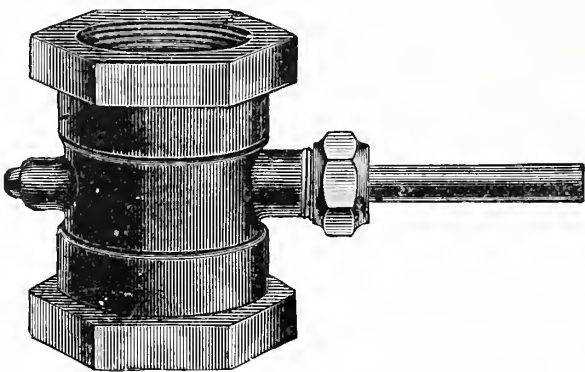


Fig. 279.

SIZE . . . . INCHES.	1	1½	1½	2	2½	3	3½	4	5	6
Screwed . . . . .	\$3.00	3.50	4.50	6.00	8.00	12.00	16.00	20.00	40.00	75.00
Flanged . . . . .	4.00	4.75	6.00	7.75	10.00	15.00	19.50	24.00	32.00	45.00
Diameter of Flange . . .				6½	7	8	9	10		

GOLDSMITH THROTTLE VALVE.

ANGLE OR STRAIGHTWAY—BRASS OR IRON BODY.

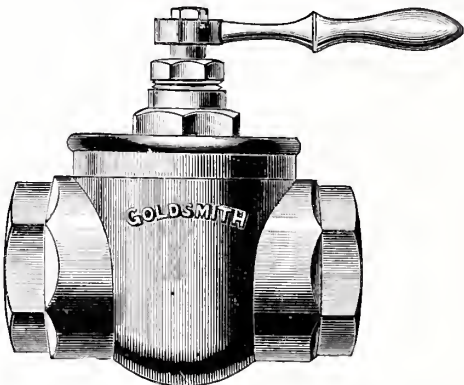


Fig. 280.

SIZE . . . . . INCHES.	¾	1	1½	1½	2	2½	3	4	5	6	7
Brass, Screw Ends, without Auxiliary . .	\$4.00	6.00	8.00	10.00	16.00	26.00	41.00	..	..	..	..
Brass, Flange Ends, " " " " " " . .	..	..	..	..	18.00	30.00	45.00	..	..	..	..
Brass, Screw Ends, with Auxiliary . . .	..	..	..	..	25.00	35.00	50.00	..	..	..	..
Brass, Flange Ends, " " " " " " . . .	..	..	..	..	28.00	40.00	55.00	..	..	..	..
Iron Body, Screw Ends, with Auxiliary . .	..	..	..	..	15.00	22.00	30.00	45.00	75.00	100.00	130.00
Iron Body, Flange Ends, " " " " " " . .	..	..	..	..	16.00	23.00	32.00	47.00	78.00	105.00	135.00
Distance End to End, Screwed Brass, In.	3½	4½	5½	5¾	7¼	8½	..	..	..	..	..
Dis. End to End, Screwed Iron Body . .	..	..	..	..	9¾	10½	12½	14½	16½	20½	..
Distance Face to Face, Flanged Brass . .	..	..	..	..	7½	9	10	..	..	..	..
Dis. Face to Face, Flanged Iron Body . .	..	..	..	..	9½	10¾	12¼	14	16	22	..
Diameter of Flange . . . . .	..	..	..	..	6	7	7½	9	10	11	13

Larger Brass Valves made if required.

IRON BODY SAFETY VALVES.

SCREWED AND FLANGED.

BRASS MOUNTED.

GLOBE VALVE — SCREWED.

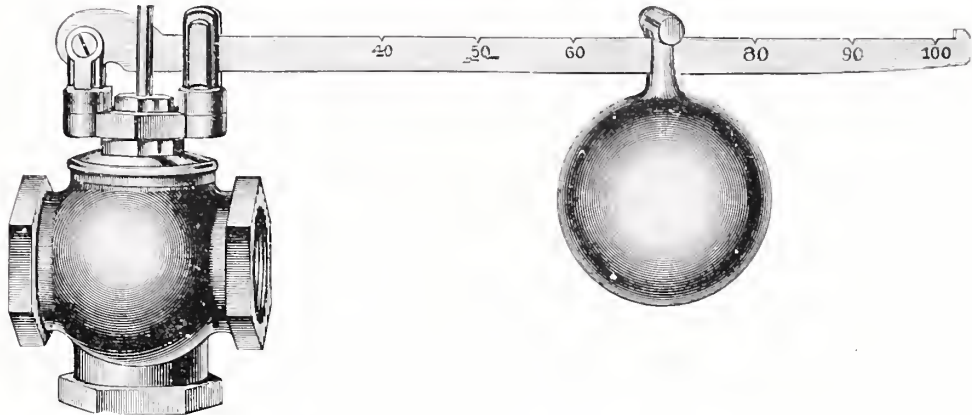


Fig. 281.

COMMON, JENKINS AND ASBESTOS SEAT—Figs. 281 and 282.

SIZE . . . . . INCHES.		1½	1½	2	2½	3	3½	4	4½	5	6
Common Seat.	Globe, Screwed Ends. . . .	\$5.00	6.00	8.00	13.00	18.00	24.00	30.00	36.00	44.00	60.00
	Angle, " " . . . .	5.00	6.00	8.00	13.00	18.00	24.00	30.00	36.00	44.00	60.00
	Globe, Flanged " " . . . .	. . .	. . .	10.50	16.00	22.50	29.25	36.00	42.00	50.00	67.50
	Angle, " " . . . .	. . .	. . .	10.50	16.00	22.50	29.25	36.00	42.00	50.00	67.50
Jenkins Seat.	Globe, Screwed Ends. . . .	6.25	7.25	10.25	16.75	22.00	31.00	38.00	. . .	55.00	73.00
	Angle, " " . . . .	6.25	7.25	10.25	16.75	22.00	31.00	38.00	. . .	55.00	73.00
	Globe, Flanged " " . . . .	. . .	. . .	12.25	19.00	25.50	34.00	41.50	. . .	62.00	80.00
	Angle, " " . . . .	. . .	. . .	12.25	19.00	25.50	34.00	41.50	. . .	62.00	80.00
Asbestos Disc.	Globe, Screwed Ends. . . .	6.25	7.25	10.25	16.75	22.00	31.00	38.00	. . .	55.00	73.00
	Angle, " " . . . .	6.25	7.25	10.25	16.75	22.00	31.00	38.00	. . .	55.00	73.00
	Globe, Flanged " " . . . .	. . .	. . .	12.25	19.00	25.50	34.00	41.00	. . .	62.00	80.00
	Angle, " " . . . .	. . .	. . .	12.25	19.00	25.50	34.00	41.50	. . .	62.00	80.00

ANGLE VALVE — FLANGED.

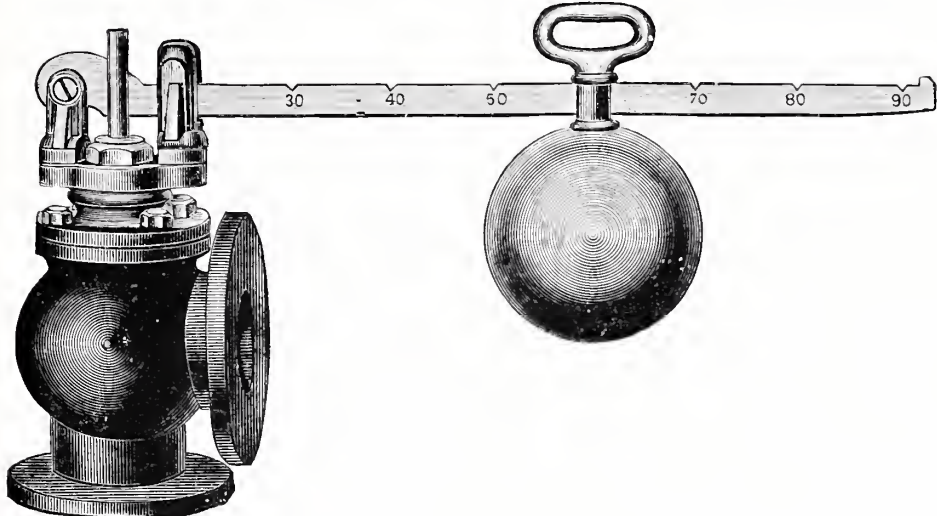


Fig. 282.

IRON BODY VALVES.

BACK PRESSURE—SCREWED AND FLANGED.

BACK PRESSURE VALVE.

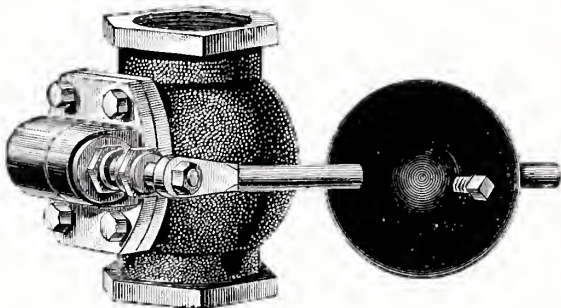


Fig. 283.

P. & C. BACK PRESSURE VALVE—FLANGED.

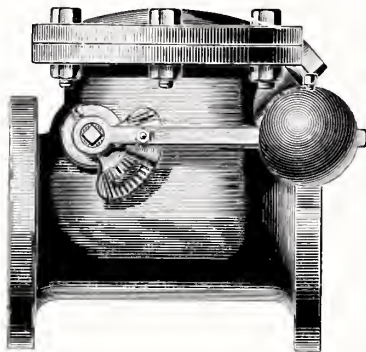


Fig. 284.

THE DAVIS BACK PRESSURE VALVE.

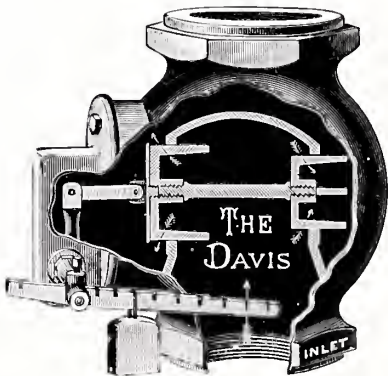


Fig. 285.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Common, Screwed . . . . .	88.00	10.50	14.50	18.00	21.00	28.00	32.00	44.00	75.00	85.00	135.00	200.00
“ Flanged . . . . .	12.50	17.50	21.50	25.00	32.00	36.00	49.00	80.00	91.00	145.00	220.00	
Diameter of Flange . . . In.	7	8	8½	9	9½	10	11	13	14	16	19	
Pratt & Cady, Screwed . . . .	6.25	10.00	12.00	16.00	18.00	25.00	32.00	41.00	50.00	65.00	95.00	
“ “ Flanged . . . . .	6.25	10.00	12.00	16.00	18.00	25.00	32.00	41.00	50.00	65.00	95.00	
Diameter of Flange . . . In.	6	7	7	8½	9	10	11	12	13	16	18	
Davis, Screwed . . . . .	14.00	16.00	18.00	22.00	25.00	30.00	40.00	60.00	80.00			
“ Flanged . . . . .										100.00	145.00	220.00
Diameter of Flange . . . In.										14	17	19
Jenkins, Screwed . . . . .	7.68	8.88	11.05	13.45	15.85	23.75	32.15	58.00				
“ Flanged . . . . .	8.88	10.10	12.25	15.35	18.15	26.15	34.80	58.00				

# CHRONOMETER VALVES.

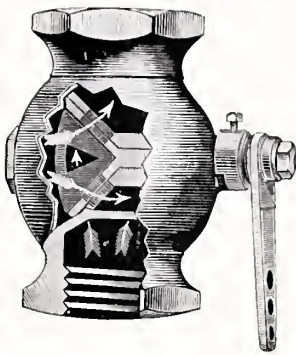


Fig. 286.  
SECTIONAL VIEW.

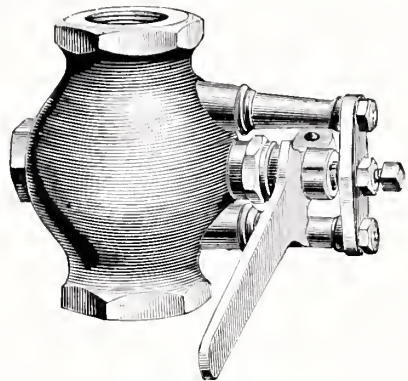


Fig. 287.  
EXTERIOR VIEW.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	4	6
Fig. 286. Iron Body . . . . .	\$5.50	8.00	11.00	15.00	20.00	25.00	35.00	60.00	120.00
Bronze Body . . . . .	7.00	10.00	14.00	20.00	28.00	37.00	55.00	...	...
Fig. 287. Iron Body, with Yoke . . . . .	...	...	15.00	20.00	25.00	33.00	45.00	75.00	150.00
Bronze Body, with Yoke . . . . .	10.00	13.00	18.00	25.00	33.00	45.00	65.00	...	...

# EXPANSION JOINTS.

## IRON AND BRASS.

BRASS BODY.



Fig. 288.

IRON BODY  
EXPANSION JOINT.

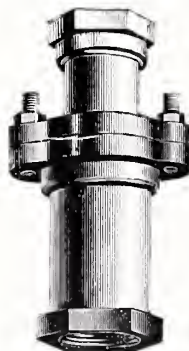


Fig. 289.

IRON BODY  
EXPANSION JOINT—FLANGED.



Fig. 290.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10	12
Fig. 288. Each . . . . .	\$1.50	2.00	2.75	4.00	5.50	8.00	16.00	24.00	...	...	...	...	...	...	...
Traverse . Inches.	4	$4\frac{1}{2}$	$4\frac{3}{4}$	$4\frac{1}{2}$	5	$5\frac{1}{2}$	$5\frac{3}{4}$	$6\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{1}{2}$	7	7	6	$6\frac{1}{2}$	...
Fig. 289. Each . . . . .	...	...	8.00	9.00	11.00	13.00	17.50	25.00	30.00	45.00	55.00	100.00	185.00	...	...
Traverse . Inches.	...	...	3	3	5	6	7	8	9	10	11	12	...	...	...
Fig. 290. Each . . . . .	...	...	...	...	18.00	20.00	25.00	35.00	40.00	55.00	65.00	110.00	200.00	...	...
Traverse . Inches.	...	...	...	...	5	6	7	8	9	10	11	12	$6\frac{1}{2}$	6	...
Diameter Flange . . . . .	...	...	...	...	5	7	8	9	10	11	12	14	16	19	...



# IRON BODY GATE VALVES.

## BRASS MOUNTED—SCREWED BONNET.

SCREWED.

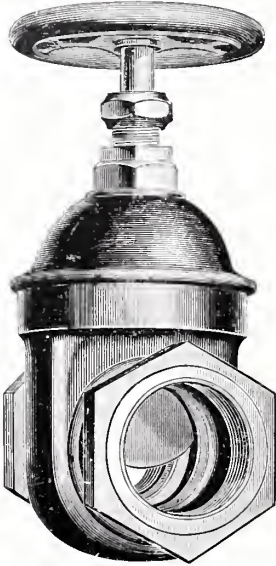


Fig. 291.

FLANGED.

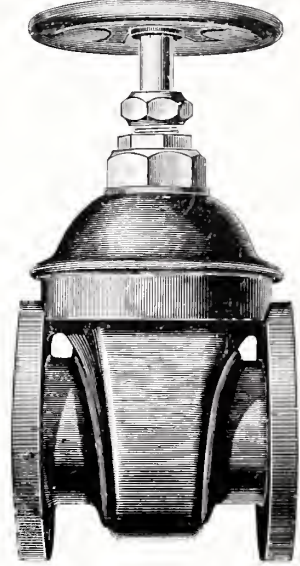


Fig. 292.

## BOLTED BONNET.

SCREWED.

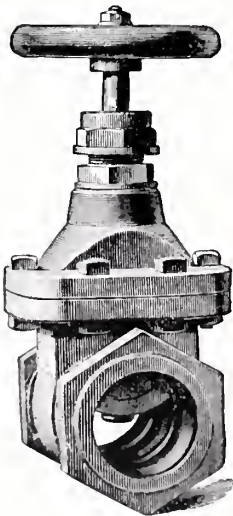


Fig. 293.

FLANGED.

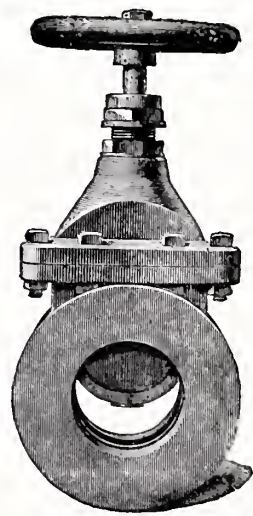


Fig. 294.

For prices of the various makes of above valves, see following pages.

# IRON BODY GATE VALVES—CONTINUED.

## BRASS MOUNTED—BOLTED BONNET.

HUB ENDS.

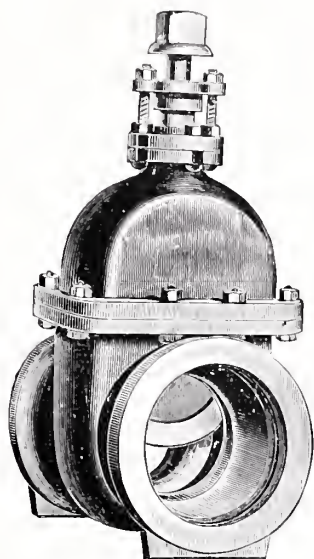


Fig. 295.

SPIGOT ENDS.

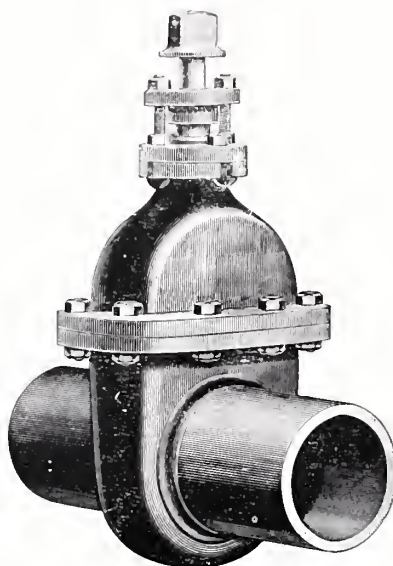


Fig. 296.

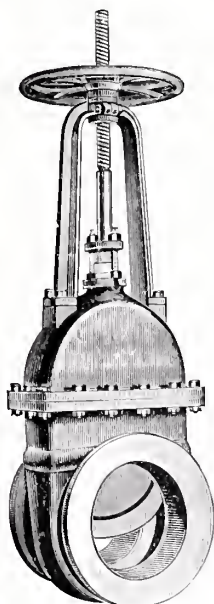
OUTSIDE SCREW AND YOKE—  
FLANGED.

Fig. 297.

INDICATOR VALVE—FLANGED.

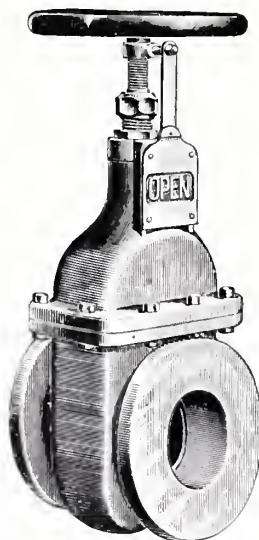


Fig. 298.

For prices of the various makes of above valves, see following pages.  
Figures 297 and 298 are made with Screwed Ends.

# IRON BODY GATE VALVES—CONTINUED.

## BRASS MOUNTED.

BOLTED BONNET—HEAVY PRESSURE.

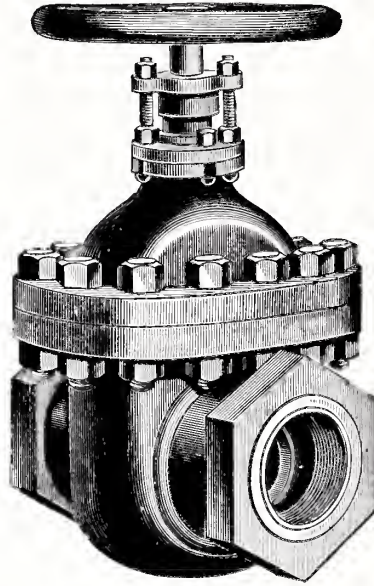


Fig. 299.

AUTOMATIC DRIP.

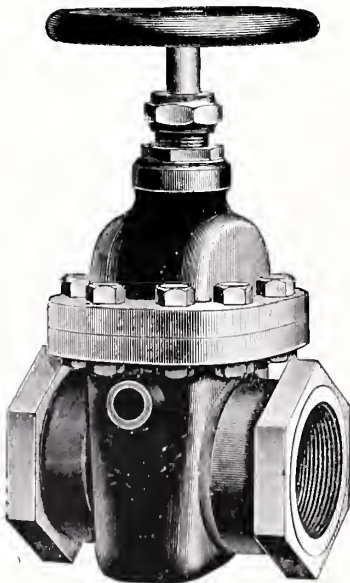


Fig. 300.

SERVICE VALVE.

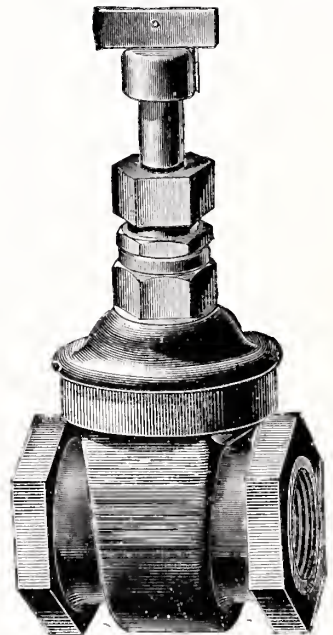


Fig. 301.

For prices of the various makes of above valves, see following pages.

## PRICE-LIST

# IRON BODY GATE VALVES.

BRASS MOUNTED—SCREWED, FLANGED, HUB AND SPIGOT.

### SCOTT'S PATENT VALVES.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	\$9.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	40.00	50.00	65.00	90.00
Flanged " . . . . .	9.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	40.00	50.00	65.00	90.00
Hub Ends . . . . .			15.00		20.00			30.00		50.00	65.00	90.00
Quick Opening, Screwed and Flanged . . . . .	12.50	16.00	20.00	22.50	27.50	30.00						
Diameter of Flange . . . . . Inches.	6	7	7½	8½	9	9½	10	11	13	14	16	19
Diameter of Hub Socket . . . . . "			4½		5½			7½		10	12	14½

### CHAPMAN PATENT VALVES.

BOLTED TOP.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	\$10.00	13.00	16.50	19.00	23.00	25.00	32.00	38.00	48.00			
Flanged " . . . . .	10.00	13.00	17.00	18.50	22.00	24.00	31.00	37.00	45.00	64.00	86.00	
Hub Ends . . . . .	10.00		15.00		19.00		25.00	30.50	36.00	45.00	62.00	82.00
Spigot Ends . . . . .	10.00		15.00		19.00		25.00	30.50	36.00	45.00	62.00	82.00
Drip Valve, Screwed . . . . .	9.35	13.35	16.75	22.00	26.00	32.75	35.50	47.00				
Drip Valve, Flanged . . . . .	10.00	14.65	18.00	23.75	27.50	31.00	33.50	45.50				
Drip Valve, Hub . . . . .	9.50		17.25		27.50		32.50	43.25				
Indicator Valve, Screwed . . . . .		17.00	20.25	24.00	27.00	31.50	33.50	41.25	48.00	58.00		
Indicator Valve, Flanged . . . . .		17.00	20.25	24.50	26.50	30.50	32.50	40.25	47.00	55.00	76.50	98.50
Outside Screw, Screwed . . . . .		20.75	23.75	28.75	33.50	40.50	46.75	55.75	65.50	83.00		
Outside Screw, Flanged . . . . .		20.75	23.75	29.25	33.00	39.50	45.75	54.75	64.50	80.00	110.00	135.00
Diameter of Flange . . . . . Inches.	6	7	7	8½	9	9½	10	11	12	13	16	18

For Sliding Stem and Lever see table below.

### CHAPMAN PATENT VALVES.

SERVICE AND SCREW TOP.

SIZE . . . . . INCHES.	½	¾	1	1¼	1½	2	2½	3	3½	4
Screw Top, Screwed . . . . .	\$2.60	3.00	3.50	4.00	5.00	7.00	10.00	12.00	16.00	18.00
Screw Top, Flanged . . . . .	2.80	3.25	4.00	4.50	5.50	7.00	10.00	12.00	16.00	18.00
Sliding Stem and Lever, extra . . . . .	1.00	1.20	1.40	1.60	1.80	2.00	2.25	2.50	2.75	3.00
Service . . . . .	2.60	3.00	3.50	4.00	5.00	7.00				
Drip Valve, Screwed . . . . .				5.80	7.00					
Drip Valve, Flanged . . . . .				6.00	7.25					

For illustrations, see pages 74, 75 and 76.



PRICE-LIST  
IRON BODY GATE VALVES—CONTINUED.

BRASS MOUNTED—SCREWED, FLANGED, HUB AND SPIGOT.

PEET PATENT VALVES.

SIZE . . . . . INCHES.	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends, iron body brass mounted . . . . .	\$12.00	15.00	18.00	20.00	23.00	25.00	30.00	43.00	53.00	70.00	95.00
Flanged Ends, iron body brass mounted . . . . .	12.00	15.00	18.00	20.00	23.00	25.00	30.00	40.00	50.00	65.00	90.00
Hub Ends . . . . .		15.00		20.00			30.00		50.00	65.00	90.00
Spigot Ends . . . . .		15.00		20.00			30.00		50.00	65.00	90.00
Quick Opening, Screwed . . .	16.00	20.00	22.00	25.00		30.00	35.00	48.00	58.00	75.00	100.00
Quick Opening, Flanged . . .	16.00	20.00	22.00	25.00		30.00	35.00	45.00	55.00	70.00	95.00
Diameter Flange . . . Inches.	7	7	8	9	9½	10	11	13	14	16	18

WALWORTH VALVES.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	10.00	13.00	16.50	19.00	23.00	25.00	32.00	38.00	48.00			
Flanged Ends . . . . .	10.00	13.00	17.00	18.50	22.00	24.00	31.00	37.00	45.00			
Hub Ends . . . . .	10.00		15.00		19.00		25.00	30.50	36.00	45.00	62.00	
Spigot Ends . . . . .	10.00		15.00		19.00		25.00	30.50	36.00	45.00	62.00	82.00
Quick Opening, extra . . . . .		2.25	2.50	2.75	3.00							
Diameter of Flange . . . . . Inches.		7	8	8½	9	9½	10	11	13	14		

LUDLOW PATENT VALVES.  
SINGLE GATE.

SIZE . . . . . INCHES.	1½	2	2½	3	3½	4	5	6	7	8	10	12
Screwed Ends . . . . .	\$5.00	6.00	8.75	11.00	15.00	16.25	23.75	28.00	35.25	40.00	58.00	74.00
Flanged Ends . . . . .	5.75	6.75	9.50	12.00	15.75	17.25	24.00	28.50	35.75	40.00	58.50	73.00
Hub Ends . . . . .		6.50	9.00	11.00	14.50	16.00	22.75	26.00	34.00	38.50	54.00	67.00
Spigot Ends . . . . .		6.75	9.25	11.50	15.00	16.50	23.25	26.75	35.00	39.75	56.50	70.50
Quick Opening, extra . . . . .	1.00	1.25	1.75	2.00	2.00	2.00	2.25	2.25	2.25	2.25	3.25	4.00
Diameter of Flange . . . . . Inches.	5½	6½	7	8	8½	9	10	11	12	13	16	18

LUDLOW DOUBLE GATE.

SIZE . . . . . INCHES.	1½	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	\$6.00	7.00	10.25	12.25	16.50	18.00	23.00	25.00	30.50	38.00	45.00	64.00	82.50
Flanged Ends . . . . .	6.25	7.50	10.75	13.25	17.50	18.50	23.50	25.50	31.00	38.00	43.50	64.50	80.00
Hub Ends . . . . .		7.00	10.00	14.50	16.00	17.00	22.00	24.00	28.00	37.00	42.00	60.00	76.00
Spigot Ends . . . . .		7.25	10.25	15.00	16.50	17.50	22.50	24.50	28.75	38.00	43.25	62.50	79.50
Quick Opening, extra . . . . .	1.00	1.25	1.75	2.00	2.00	2.00	2.25	2.25	2.25	2.25	2.25	3.25	4.00
Diameter of Flange . . . Inches.	5½	6½	7	8	8½	9	9½	10	11	12	13	16	18

For illustrations, see pages 74, 75 and 76.

## PRICE-LIST

### IRON BODY GATE VALVES—CONTINUED.

BRASS MOUNTED—SCREWED, FLANGED, HUB AND SPIGOT.

#### JENKINS PATENT VALVES.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	\$8.00	12.00	15.00	18.00	21.00	29.00	30.00	36.00	50.00	62.00	85.00	120.00
Flanged Ends . . . . .	9.00	13.00	16.00	19.00	22.50	31.00	32.00	38.00	50.00	62.00	85.00	120.00
Hub Ends . . . . .	9.00	12.00	15.00	18.00	21.00	29.00	30.00	36.00	50.00	62.00	85.00	120.00
Spigot Ends . . . . .	9.00	12.00	15.00	18.00	21.00	29.00	30.00	36.00	50.00	62.00	85.00	120.00
Diameter of Flange . . . Inches.	6½	7	7	8½	9	.	10	11	12	13	16	18

#### RENSSELAER PATENT VALVES.

SIZE . . . . . INCHES.	2	2½	3	3½	4	5	6	7	8	10	12
Screwed Ends . . . . .	\$7.00	10.50	13.00	16.50	18.00	25.00	31.00	.	.	.	.
Flanged Ends . . . . .	7.25	10.75	13.50	17.00	18.50	24.50	30.00	.	.	.	.
Hub Ends . . . . .	7.25	10.75	14.50	16.00	17.50	24.00	28.00	36.00	42.00	58.00	76.00
Spigot Ends . . . . .	7.25	10.75	14.50	16.00	17.50	24.00	28.00	36.00	42.00	58.00	76.00
Quick Opening, Screwed . . . . .	9.00	12.75	15.50	19.25	21.00	28.50	35.00	.	.	.	.
“ “ Flanged . . . . .	9.25	13.00	16.00	19.75	21.50	28.00	34.00	.	.	.	.
“ “ Hub . . . . .	9.25	13.00	17.00	18.75	20.50	27.50	32.00	.	.	.	.
“ “ Spigot . . . . .	9.25	13.00	17.00	18.75	20.50	27.50	32.00	.	.	.	.
Outside Screw and Yoke, Screwed . . . . .	8.75	13.25	16.25	20.75	22.50	31.25	38.75	47.50	56.25	78.00	.
“ “ “ Flanged . . . . .	9.25	13.50	17.00	21.25	23.00	30.75	37.50	46.25	54.50	75.00	97.50
Diameter of Flange . . . . . Inches.	6½	7	8	8½	9	10	11	12	14	16	18

#### ASBESTOS DISC VALVES.

##### BOLTED TOP.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	\$8.00	12.00	15.00	18.00	21.00	25.00	30.00	36.00	50.00	62.00	...	...
Flanged Ends . . . . .	8.00	12.00	15.00	18.00	21.00	25.00	30.00	36.00	50.00	62.00	85.00	120.00
Hub Ends . . . . .	8.00	...	15.00	...	21.00	...	30.00	36.00	...	62.00	85.00	120.00
Spigot Ends . . . . .	8.00	...	15.00	...	21.00	...	30.00	36.00	...	62.00	85.00	120.00
Diameter of Flange . . . Inches.	6	7	7	8½	9	9½	10	11	12	13	16	18

##### ASBESTOS DISC—SCREWED TOP.

SIZE . . . . . INCHES.	½	¾	1	1¼	1½	2	2½	3	3½	4	...	...
Screwed Ends . . . . .	\$1.60	2.20	2.80	4.00	5.50	8.00	12.00	15.00	18.00	21.00	...	...
Flanged Ends . . . . .	1.85	2.50	3.25	4.50	6.00	8.00	12.00	15.00	18.00	21.00	...	...
Seat Ring . . . . .	.18	.20	.24	.36	.50	.72	.96	1.20	1.50	1.80	...	...

For illustrations, see pages 74, 75 and 76.

PRICE-LIST  
IRON BODY GATE VALVES—CONTINUED.

BRASS MOUNTED — SCREWED, FLANGED, HUB AND SPIGOT.  
KENNEDY PATENT VALVES.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	\$8.50	12.00	15.00	18.00	20.00	22.50	25.00	30.00	40.00	50.00	65.00	90.00
Flanged Ends . . . . .	9.00	12.50	15.50	19.00	21.00	24.00	27.00	32.00	40.00	50.00	65.00	90.00
Quick Opening, extra . . . . .	2.50	2.75	3.00	3.50	4.00	4.50	5.00	6.00	7.00	8.00	. . . . .	. . . . .
Hub Ends . . . . .	. . . . .	. . . . .	15.00	. . . . .	20.00	. . . . .	25.00	30.00	40.00	50.00	65.00	90.00
Spigot Ends . . . . .	. . . . .	. . . . .	15.50	. . . . .	21.00	. . . . .	27.00	32.00	40.00	50.00	65.00	90.00
Outside Screw & Yoke screwed, & flanged ends . . . . .	. . . . .	20.00	23.00	28.00	33.00	40.00	46.00	55.00	65.00	83.00	110.00	135.00
Indicator, Screwed . . . . .	12.75	16.50	20.25	24.00	26.75	29.50	32.50	39.00	50.50	62.00	80.00	108.00
Indicator, Flanged . . . . .	12.75	17.00	20.75	25.00	27.25	31.00	34.50	41.00	50.50	62.00	80.00	108.00

ALL IRON GATE VALVES.  
PEET.

SIZE . . . . . INCHES.	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8
Screwed, Each . . . . .	\$3.50	3.50	3.50	7.50	8.50	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Flanged, Each . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	12.00	15.00	17.00	19.50	22.00	24.00	41.00

SCOTT DOUBLE DISC.

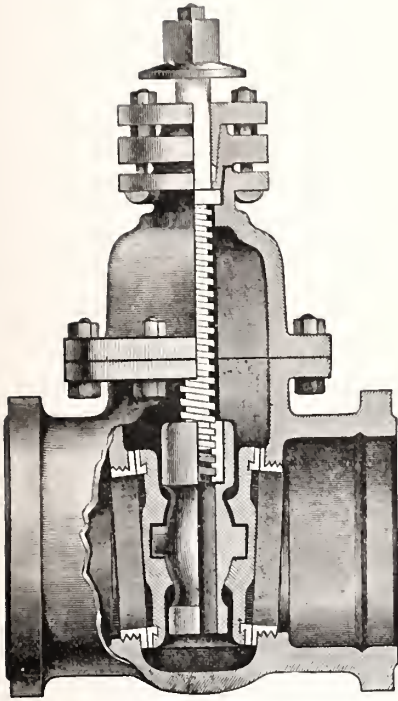
SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends . . . . .	\$9.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	40.00	50.00	65.00	90.00
Flanged Ends . . . . .	9.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	40.00	50.00	65.00	90.00

KENNEDY DOUBLE GATE.

SIZE . . . . . INCHES.	2	2½	3	3½	4	5	6	7	8	10	12
Screwed Ends . . . . .	\$8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Flanged Ends . . . . .	8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Sliding Stem and Lever . . . . .	11.00	14.75	18.00	21.50	24.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hub Ends . . . . .	8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Spigot Ends . . . . .	8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Outside Screw and Yoke, screwed and flanged ends . . . . .	. . . . .	18.00	20.70	25.20	29.70	41.40	49.50	58.50	74.70	99.00	111.50

JENKINS.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Screwed Ends . . . . .	\$3.25	3.25	3.75	4.50	5.25	8.25	10.00	12.25	15.00	18.25
Flanged Ends . . . . .						10.25	11.50	13.75	16.50	20.50



# “Eddy” Valves,

## HUB, SCREW AND FLANGE.

MEASURE IN INCHES				PRICES	
SIZE	Diameter Standard Flange	Face to Face Flange	Face to Face Hub	Hub, Screw, Flange and Spigot	SIZE
2	6	7 $\frac{1}{4}$	9 $\frac{1}{4}$	\$10 00	2"
3	8	7 $\frac{3}{4}$	10 $\frac{1}{2}$	15 00	3"
4	9	9 $\frac{3}{8}$	13	19 00	4"
5	10	10 $\frac{1}{2}$	14 $\frac{1}{2}$	25 00	5"
6	11	12 $\frac{5}{8}$	15	31 00	6"
7	12	12 $\frac{1}{2}$	15	37 00	7"
8	13	12 $\frac{3}{4}$	16	45 00	8"
9	14	13 $\frac{1}{2}$	16	53 00	9"
10	16	14 $\frac{3}{4}$	16	63 00	10"
12	18	15 $\frac{3}{4}$	17	83 00	12"

Discount, also prices on large Valves (14" to 60"), on application.

### WE SEND

Unless otherwise ordered, Valves with hub ends, arranged to open by turning to right.  
This applies to geared Valves also.

### QUICK OPENING VALVE.

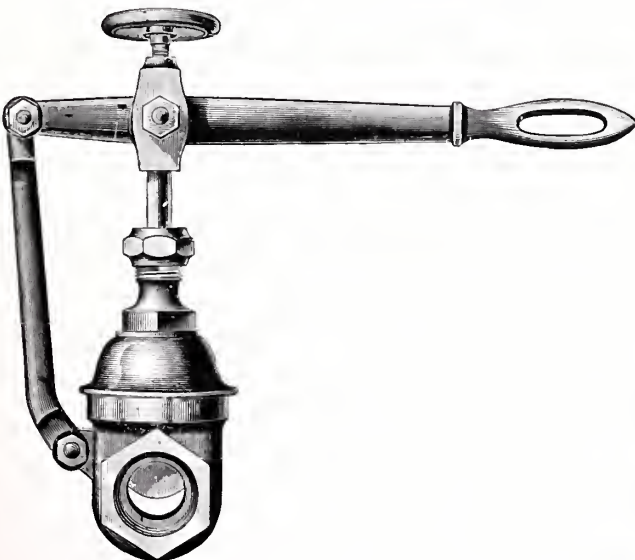


Fig. 304.

### SERVICE VALVE.

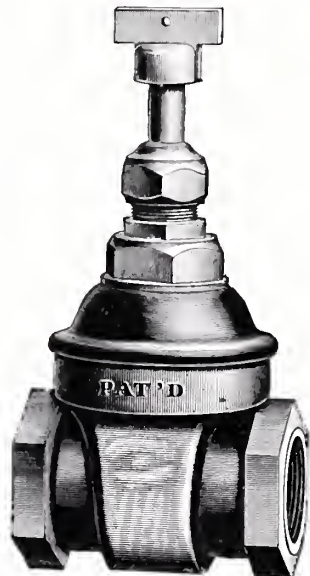


Fig. 303.

For prices of the various makes of above valves, see following pages.



SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	7	8	10	12
Screwed Ends. . . . .	\$9.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	40.00	50.00	65.00	90.00
Flanged Ends. . . . .	9.00	12.00	15.00	18.00	20.00	23.00	25.00	30.00	40.00	50.00	65.00	90.00

KENNEDY DOUBLE GATE.

SIZE . . . . . INCHES.	2	2½	3	3½	4	5	6	7	8	10	12
Screwed Ends . . . . .	\$8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Flanged Ends . . . . .	8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Sliding Stem and Lever . . . .	11.00	14.75	18.00	21.50	24.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Hub Ends . . . . .	8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Spigot Ends . . . . .	8.50	12.00	15.00	18.00	20.00	25.00	30.00	40.00	50.00	65.00	90.00
Outside Screw and Yoke, screwed and flanged ends . . . .	. . . .	18.00	20.70	25.20	29.70	41.40	49.50	58.50	74.70	99.00	111.50

JENKINS.

SIZE . . . . . INCHES.	½	¾	1	1¼	1½	2	2½	3	3½	4
Screwed Ends . . . . .	\$3.25	3.25	3.75	4.50	5.25	8.25	10.00	12.25	15.00	18.25
Flanged Ends . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	10.25	11.50	13.75	16.50	20.50

For illustrations, see pages 74, 75 and 76.

# PATENT BRASS BODY GATE VALVES.

## SCREWED AND FLANGED.

GATE VALVE.

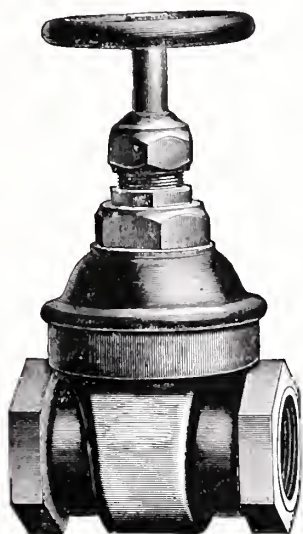


Fig. 302.

HOSE VALVE WITH CAP.

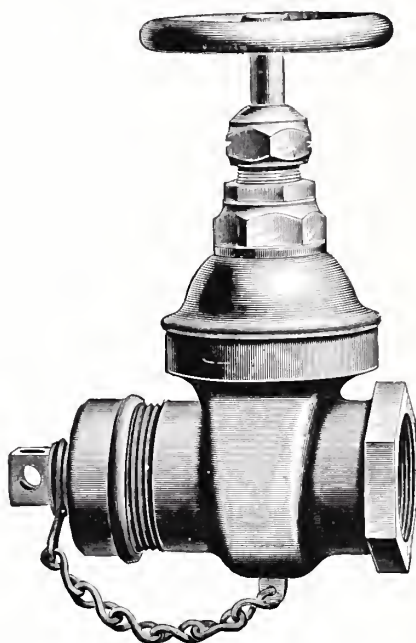


Fig. 303.

QUICK OPENING VALVE.

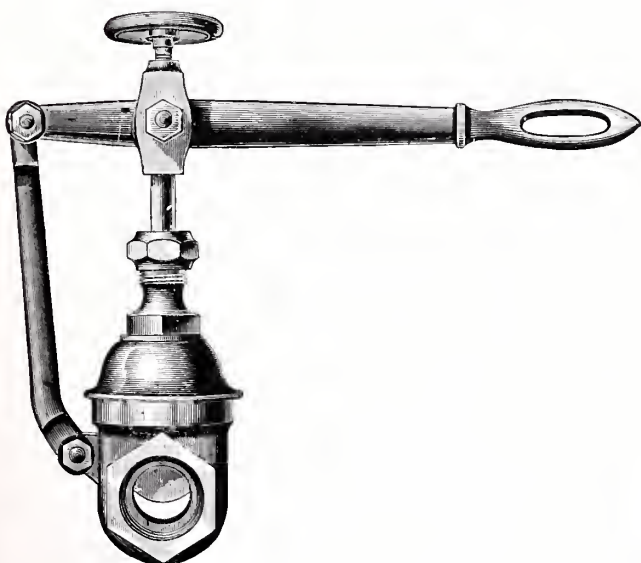


Fig. 304.

SERVICE VALVE.

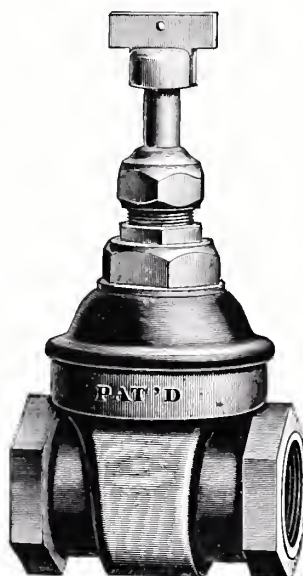


Fig. 305.

For prices of the various makes of above valves, see following pages.

PRICE-LIST

PATENT BRASS BODY GATE VALVES.

SCREWED AND FLANGED.

SCOTT PATENT VALVES.

SIZE. . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed Ends . . . . .	\$1.30	1.75	2.50	3.50	5.00	7.50	15.00	22.00
Flanged " . . . . .	. . .	. . .	. . .	. . .	. . .	15.00	25.00	30.00
Quick Opening . . . . .	3.00	3.50	4.00	5.00	7.00	10.00	19.00	30.00
Diameter of Flange. . . . . In.	. . .	. . .	. . .	. . .	. . .	6	7	$7\frac{1}{2}$

CHAPMAN PATENT VALVES.

SIZE. . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Screwed Ends . . . . .	\$1.20	1.20	1.30	1.75	2.25	3.25	4.25	6.25	11.50	16.00	30.00	38.00
Flanged " . . . . .	2.25	2.25	2.50	3.00	4.00	5.00	7.50	10.00	16.00	20.00	39.00	46.00
Quick Opening, extra . . . . .	.75	.75	1.00	1.20	1.40	1.60	1.80	2.00	2.25	2.50	2.75	3.00
Hose Valve . . . . .	. . .	. . .	. . .	1.75	2.25	3.25	4.25	6.25	11.50	16.00	. . .	. . .
Cap and Chain, finished, extra . . . . .	. . .	. . .	. . .	1.00	1.25	1.35	1.50	1.75	2.50	3.50	. . .	. . .
Diameter of Flange. . . . . Inches.	$2\frac{1}{2}$	$2\frac{1}{2}$	3	3	4	$4\frac{1}{2}$	5	6	7	7	$8\frac{1}{2}$	9

PEET PATENT VALVES.

SIZE. . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed Ends . . . . .	\$1.00	1.00	1.20	1.75	2.50	3.50	5.00	7.50	14.00	19.50
Flanged " . . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	14.00	24.00	27.00
Quick Opening . . . . .	. . .	. . .	. . .	3.00	4.00	5.00	6.50	8.75	15.50	21.00
Hose, Iron Wheel . . . . .	. . .	. . .	. . .	. . .	2.50	3.50	5.00	7.50	14.00	. . .
Hose, Brass " . . . . .	. . .	. . .	. . .	. . .	2.90	4.00	5.50	8.00	14.60	. . .
Cap and Chain, finished, extra . . . . .	. . .	. . .	. . .	. . .	1.25	1.35	1.50	1.75	2.50	. . .

WALWORTH VALVES.

SIZE. . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Screwed Ends. . . . .	\$1.20	1.20	1.30	1.75	2.25	3.25	4.25	6.25	11.50	16.00	30.00	38.00
Flanged " . . . . .	2.25	2.25	2.50	3.00	4.00	5.00	7.50	10.00	16.00	20.00	39.00	46.00
Quick Open'g, add . . . . .	.75	.75	1.00	1.20	1.40	1.60	1.80	2.00	2.25	2.50	2.75	3.00
Service Gate . . . . .	. . .	. . .	2.60	3.00	3.50	4.00	5.00	7.00	. . .	. . .	. . .	. . .
Angle " . . . . .	. . .	. . .	4.85	5.60	7.35	8.80	10.75	16.75	. . .	. . .	. . .	. . .
Hose " . . . . .	. . .	. . .	1.75	2.25	3.25	4.25	6.25	11.50	16.00	. . .	. . .	. . .
Diam. of Flange. . . . .	$2\frac{1}{2}$	$2\frac{1}{2}$	3	3	4	$4\frac{1}{2}$	5	$6\frac{1}{2}$	7	7	$8\frac{1}{2}$	9

# PRICE-LIST

## PATENT BRASS BODY GATE VALVES.

CONTINUED.

SCREWED AND FLANGED.

### ASBESTOS DISC GATE VALVES.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed Ends . . . . .	\$1.25	1.60	2.20	2.80	4.00	5.50	8.00	15.75	22.00
Flanged Ends . . . . .	. . .	. . .	5.00	6.00	9.00	11.00	16.50	25.00	34.00
Hose Valve, Screwed . . . . .	. . .	. . .	2.20	2.80	4.00	5.50	8.00	15.75	22.00
“ “ Flanged . . . . .	. . .	. . .	. . .	6.00	9.00	11.00	16.50	25.00	34.00
Finished Brass Cap and Chain, extra . . . . .	. . .	. . .	1.00	1.25	1.35	1.50	1.75	2.50	3.50
Rings for Seat . . . . .	.14	.18	.20	.24	.36	.50	.72	.96	1.20
Diameter of Flange . In.	. . .	3	3	4	$4\frac{1}{2}$	5	6	7	7

### LUDLOW PATENT VALVES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Screwed Ends . . . . .	\$1.40	1.80	2.35	3.40	4.40	6.25	13.75	15.50	23.50	34.00	45.00	52.00	76.00
Flanged Ends . . . . .	. . .	. . .	. . .	5.70	7.40	11.00	18.75	21.50	30.50	43.00	55.00	64.00	88.00
Hose Valve, Double Gate . . . . .	. . .	. . .	. . .	. . .	. . .	6.00	7.75	13.00	. . .	. . .	. . .	. . .	. . .
With Cap and Chain, Double Gate . . . . .	. . .	. . .	. . .	. . .	. . .	7.00	9.25	14.50	. . .	. . .	. . .	. . .	. . .
With Loose Coupling, Single Gate . . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	12.50	. . .	. . .	. . .	. . .	. . .
Without Loose Coupling, Single Gate . . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	10.00	. . .	. . .	. . .	. . .	. . .
Extra Heavy Single Gate, without Loose Coupling . . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	10.50	. . .	. . .	. . .	. . .	. . .
Extra Heavy Single Gate, with Loose Coupling . . . . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	13.75	. . .	. . .	. . .	. . .	. . .
Service Valves . . . . .	2.25	2.65	3.15	3.40	4.50	6.50	. . .	. . .	. . .	. . .	. . .	. . .	. . .
Sliding Stem, extra . . . . .	.80	.80	.80	1.00	1.00	1.25	1.75	2.00	2.00	2.00	2.25	2.25	2.25
Diameter of Flange . . . In.	. . .	. . .	. . .	$4\frac{3}{8}$	5	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	9	$9\frac{1}{2}$	10	11

### KENNEDY PATENT VALVES.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Screwed Ends . . . . .	\$1.25	1.30	1.75	2.50	3.50	5.00	7.50	14.00	20.00	32.00	40.00	55.00	78.00
Flanged Ends . . . . .	2.50	2.75	3.50	4.50	5.50	7.50	12.00	18.00	25.00	40.00	48.00	66.00	94.00
Quick Opening, Screwed . . . . .	. . .	2.50	3.00	4.00	5.00	7.00	10.00	19.00	25.00	38.00	47.00	. . .	. . .
“ “ Flanged . . . . .	. . .	4.00	4.75	6.00	7.00	9.50	14.50	23.00	30.00	46.00	55.00	. . .	. . .
Hose . . . . .	. . .	. . .	. . .	2.50	3.50	5.00	7.50	14.00	20.00	. . .	. . .	. . .	. . .
Finished Cap & Chain, extra . . . . .	. . .	. . .	. . .	1.25	1.35	1.50	1.75	2.50	3.50	. . .	. . .	. . .	. . .
Indicator, Screwed . . . . .	. . .	. . .	. . .	. . .	. . .	9.25	13.75	20.25	27.25	41.00	51.75	. . .	. . .
“ “ Flanged . . . . .	. . .	. . .	. . .	. . .	. . .	11.25	17.75	24.25	32.25	49.00	59.75	. . .	. . .
Diameter of Flange . . . In.	. . .	3	3	4	$4\frac{1}{2}$	5	6	7	7	$7\frac{1}{2}$	9	10	11



PRICE-LIST  
PATENT BRASS BODY GATE VALVES.

CONTINUED.

SCREWED AND FLANGED.

JENKINS PATENT VALVES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Screwed Ends . . . . .	\$1.50	2.00	2.85	4.00	5.00	7.50	14.00	20.00
Flanged Ends . . . . .	3.00	4.00	5.00	7.00	9.50	13.50	21.00	28.00
Hose Gate . . . . .	. . .	. . .	3.30	4.70	5.90	8.75	15.75	22.00
Quick Opening . . . . .	2.50	3.20	4.25	5.60	6.80	9.50	16.25	22.50

RENSSELAER PATENT VALVES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6
Screwed Ends . . . . .	\$1.25	1.65	2.15	3.15	4.25	6.25	11.50	16.00	21.00	35.00	52.00	78.00
Face to Face . . . . . In.	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{8}$	$3\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{7}{8}$	5	. . .	$7\frac{1}{4}$	. . .	$8\frac{1}{4}$
Flanged Ends . . . . .	. . .	. . .	. . .	. . .	. . .	11.50	18.00	22.00	31.00	43.00	64.00	90.00
Diameter Flange . . . . . In.	. . .	. . .	. . .	. . .	. . .	6	$6\frac{1}{2}$	7	. . .	9	. . .	11
Service Valve . . . . .	1.25	1.65	2.15	3.15	4.25	6.25	. . .	. . .	. . .	. . .	. . .	. . .
Hose Valve . . . . .	. . .	. . .	2.15	3.15	4.25	6.25	11.50	16.00	. . .	. . .	. . .	. . .
Cap and Chain . . . . .	. . .	. . .	1.25	1.35	1.50	1.75	2.50	3.50	. . .	. . .	. . .	. . .
Quick Opening, Screwed . . . . .	2.25	2.85	3.55	4.75	6.05	8.25	13.75	18.50	23.75	38.00	55.50	82.00
Flanged Ends . . . . .	. . .	. . .	. . .	. . .	. . .	13.50	20.25	24.50	33.75	46.00	67.50	94.00
Diameter Flange . . . . . In.	. . .	. . .	. . .	. . .	. . .	6	$6\frac{1}{2}$	7	. . .	9	. . .	11

JENKINS OR FRINK DISCS.

SIZE . . . IN.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8	10	12
Each . . . . .	\$0.03	.04	.04	.05	.06	.09	.12	.18	.24	.33	.45	.52	.68	.90	.98	1.05	1.50	2.00

ASBESTOS DISCS.

ASBESTOS DISCS FOR BRASS, GLOBE AND ANGLE VALVES.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Disc and Holders Complete . . . . .	\$0.06	.07	.09	.10	.12	.18	.25	.36	.48	.60

ASBESTOS DISCS FOR IRON BODY, GLOBE AND ANGLE VALVES.

SIZE . . . . . INCHES.	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8	10	12
Disc and Holders Complete . . . . .	\$0.25	.36	.48	.60	.75	.90	1.20	1.50	1.80	2.10	2.70	3.00

## BRASS BODY VALVES.

SCREWED AND FLANGED.

## GLOBE, ANGLE AND CROSS.

GLOBE VALVE.

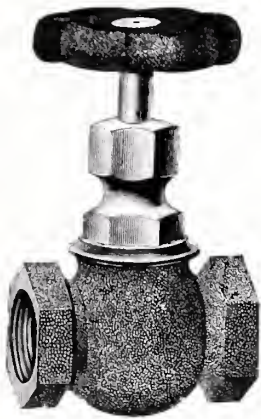


Fig. 306.

ANGLE VALVE.



Fig. 307.

CROSS VALVE.

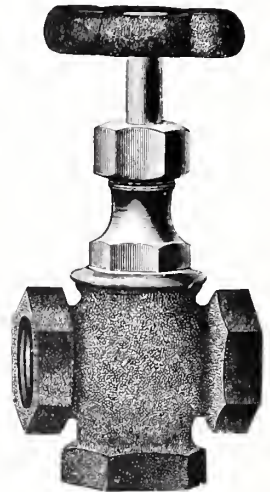


Fig. 308.

## STANDARD BRASS SEAT.

SIZE. . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Globe, Rough Body, Screwed . . .	\$0.60	.60	.75	1.00	1.35	1.80	2.80	3.90	5.90	11.25	16.00	30.00	40.00
Angle " " " . . .	.60	.60	.75	1.00	1.35	1.80	2.80	3.90	5.90	11.25	16.00	30.00	40.00
Cross " " " . . .	.85	1.00	1.50	2.00	2.50	3.50	5.00	8.00	16.00	24.00	...	...	...
Hose " " " . . .	...	...	1.15	1.60	2.15	3.35	5.00	7.25	13.00	18.50	...	...	...
Globe " " Flanged . . .	...	...	3.50	4.00	5.00	7.00	9.00	14.00	20.00	30.00	45.00	65.00	...
Angle " " " . . .	...	...	3.50	4.00	5.00	7.00	9.00	14.00	20.00	30.00	45.00	65.00	...
Cross " " " . . .	...	...	...	...	...	7.00	10.00	14.00	21.00	30.00	45.00	60.00	90.00
Hose " " " . . .	...	...	2.75	4.00	5.00	7.00	9.00	14.00	20.00	30.00	...	...	...
Globe, Extra Heavy, Screwed . . .	.80	.80	.95	1.25	1.80	2.50	3.75	5.25	7.75	14.00	19.00	36.00	47.00
Angle " " " . . .	.80	.80	.95	1.25	1.80	2.50	3.75	5.25	7.75	14.00	19.00	36.00	47.00

## FRINK PATENT SEAT.

SIZE. . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Globe, Screwed Ends. . . . .	\$0.80	1.00	1.25	1.75	2.50	3.35	4.60	7.00	14.00	20.00
Angle, " " " . . . . .	.80	1.00	1.25	1.75	2.50	3.35	4.60	7.00	14.00	20.00



## BRASS BODY CHECK VALVES.

SCREWED AND FLANGED.

## GLOBE, ANGLE AND VERTICAL.

ANGLE VALVE.

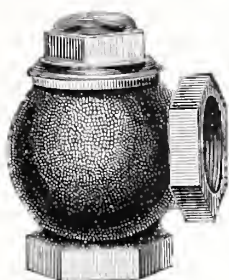


Fig. 309.

HORIZONTAL — FLANGED.

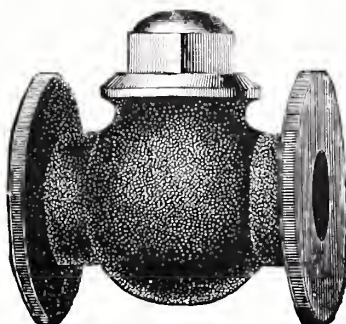


Fig. 310.

VERTICAL.



Fig. 311.

## STANDARD BRASS SEAT VALVES.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Globe, Screwed . . . . .	\$0.50	.50	.60	.85	1.15	1.55	2.30	3.25	5.20	10.00	14.00	27.00	36.00
Angle " . . . . .	.50	.50	.60	.85	1.15	1.55	2.30	3.25	5.20	10.00	14.00	27.00	36.00
Vertical " . . . . .	.50	.50	.60	.85	1.15	1.55	2.30	3.25	5.20	10.00	14.00	27.00	36.00
" Side Cap . . . . .	. . . . .	. . . . .	. . . . .	1.00	1.40	1.85	2.85	4.00	6.00	11.25	16.00	. . . . .	. . . . .
Globe, Screwed, Finished Body . . . . .	.80	.80	1.00	1.25	1.60	2.05	2.90	4.00	6.45	11.75	16.50	. . . . .	. . . . .
Angle " " " . . . . .	.80	.80	1.00	1.25	1.60	2.05	2.90	4.00	6.45	11.75	16.50	. . . . .	. . . . .
Globe, Flanged . . . . .	. . . . .	. . . . .	. . . . .	3.25	3.75	4.50	6.50	8.50	13.00	19.00	28.00	42.00	60.00
Globe, Extra Heavy . . . . .	. . . . .	.65	.75	1.15	1.60	2.00	3.25	4.50	6.75	12.50	17.00	. . . . .	. . . . .
Rouse, Swing Check . . . . .	. . . . .	. . . . .	. . . . .	1.30	1.75	2.25	3.25	4.25	6.25	11.50	16.00	. . . . .	. . . . .
Pratt & Cady, Swing Check . . . . .	. . . . .	1.25	1.25	1.30	1.75	2.25	3.25	4.25	6.25	11.50	16.00	. . . . .	. . . . .
Pratt & Cady, Swing Check, Angle . . . . .	. . . . .	. . . . .	. . . . .	1.30	1.75	2.25	3.25	4.25	6.25	. . . . .	. . . . .	. . . . .	. . . . .

## JENKINS SEAT—BRASS BODY CHECK VALVES.

SIZE. . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Globe, Screwed . . . . .	\$1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	13.50	20.50
Angle " . . . . .	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	13.50	20.50
Upright " . . . . .	1.10	1.20	1.30	1.90	2.60	3.60	5.00	7.50	13.50	20.50
Globe, Flanged . . . . .	. . . . .	. . . . .	. . . . .	4.75	5.50	7.80	9.80	15.00	22.80	32.40
Angle " . . . . .	. . . . .	. . . . .	. . . . .	4.75	5.50	7.80	9.80	15.00	22.80	32.40
Upright " . . . . .	. . . . .	. . . . .	. . . . .	4.75	5.50	7.80	9.80	15.00	22.80	32.40



BRASS BODY SAFETY VALVES.

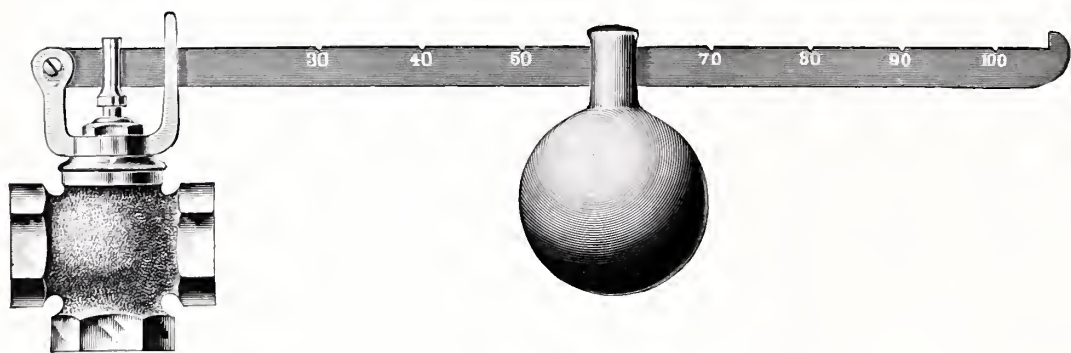


Fig. 312.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Brass Seat, Screwed . . . . .	\$2.75	3.50	5.00	7.00	8.50	12.00	20.00	30.00
Brass Seat, Flanged . . . . .	. .	. .	9.50	13.50	17.50	25.00	34.00	50.00
Jenkins Seat, Screwed . . . . .	4.12	4.95	5.50	8.25	10.15	15.40	. .	. .
Asbestos Disc, Screwed . . . . .	3.75	4.50	5.00	7.50	9.25	14.00	. .	. .

LOW PRESSURE SAFETY VALVE.  
WITH BALANCE WEIGHT.

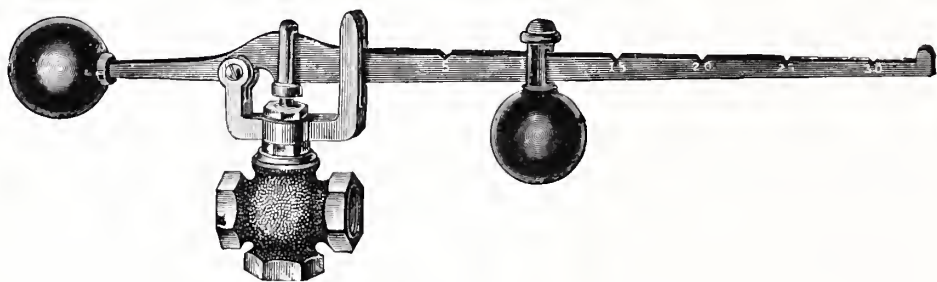


Fig. 313.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 313 . . . . .	\$2.50	3.00	3.75	5.50	7.75	9.50	12.35

BUTTERFLY VALVE.

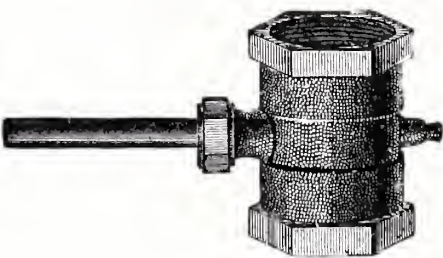


Fig. 314.

SIZE . . . . . INCHES.	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 314 . . . . .	\$3.50	4.50	5.50	8.00	11.00	16.00

# LOW PRESSURE SAFETY VALVES.

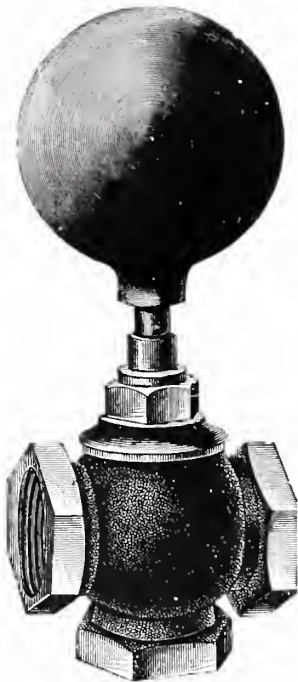


Fig. 315.

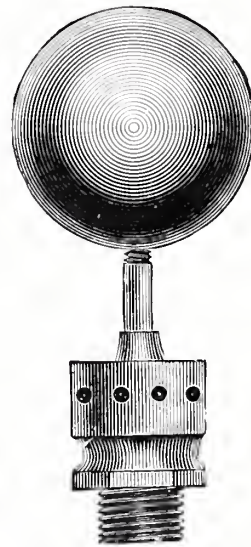


Fig. 316.

## WITH BALL WEIGHTS.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 315 . . . . .	\$2.75	3.50	5.00	7.00	8.50	12.00
" 316 . . . . .	1.50	2.25	3.00	4.00	5.50	. .

## VACUUM VALVE.

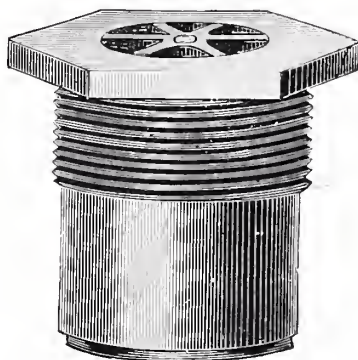


Fig. 317.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Fig. 317 . . . . .	\$1.50	2.00	2.50	3.00

BRASS STEAM COCKS.  
SCREWED AND FLANGED.

SQUARE HEAD.



Fig. 318.

TEE HEAD.



Fig. 319.

FLAT HEAD.



Fig. 320.

THREE-WAY COCK.

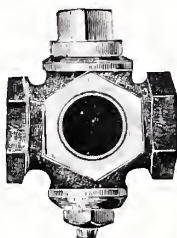


Fig. 321.

SQUARE HEAD—FLANGED.

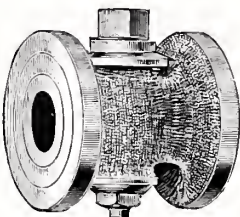


Fig. 322.

BRASS STEAM COCKS.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Figs. 318, 319 and 320 . . . .	\$0.70	.70	.75	1.10	1.50	2.25	3.75	4.80	7.25	14.00	20.00	36.00	50.00
Fig. 321 . . . . .	. . .	. . .	. . .	1.65	2.25	3.40	5.50	7.00	10.00	18.00	26.00	45.00	65.00
Fig. 321, Flanged . . . . .	. . .	. . .	. . .	5.25	6.50	7.75	10.00	14.00	22.00	31.00	39.00	70.00	100.00
Fig. 322, Flanged . . . . .	. . .	. . .	. . .	3.50	4.50	5.50	8.00	10.00	15.00	22.00	32.00	53.00	75.00
Male and Female . . . . .	. . .	.80	.85	1.20	1.70	2.55	4.50	5.40	8.00	15.50	22.00	. . .	. . .

DOUBLE EXTRA HEAVY.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Figs. 318 and 320 . . . .	\$0.80	.80	.95	1.30	1.90	2.95	4.50	5.75	9.00	17.00	25.00	36.00	50.00
Male and Female . . . .	.90	1.05	1.40	2.00	3.05	4.90	6.30	9.75	18.50	27.00	. . .	. . .	. . .
Fig. 319 . . . . .	.80	.80	.95	1.30	1.90	2.75	4.50	5.75	9.00	. . .	. . .	. . .	. . .

WITH STOP ON KEY.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Figs. 318 and 320 . . . . .	\$1.20	1.65	2.45	4.00	5.10	7.65	14.50	20.75	. . .	. . .
" " " Flanged . . . . .	3.60	4.65	5.75	8.25	10.30	15.40	22.50	32.75	54.00	76.50
" 321 . . . . .	1.75	2.40	3.60	5.75	7.30	10.40	18.50	26.75	. . .	. . .
" " Flanged . . . . .	5.35	6.65	7.95	10.25	14.30	22.40	31.50	39.75	. . .	. . .

DOUBLE EXTRA HEAVY WITH STOP ON KEY.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4
Figs. 318 and 320 . . . .	\$1.40	2.05	2.95	4.75	6.05	9.40	17.50	25.75	37.00	51.50

Square Head will always be furnished unless otherwise ordered.

## BRASS SERVICE AND METER COCKS.

SQUARE HEAD.



Fig. 323.

FLAT HEAD.

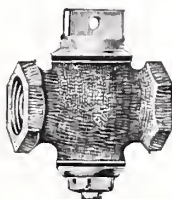


Fig. 324.

MALE AND FEMALE.

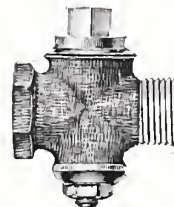


Fig. 325.

TEE HEAD.

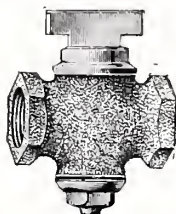


Fig. 326.

METER COCK.

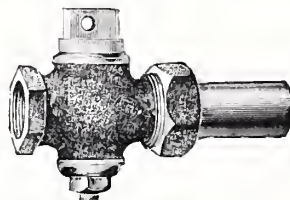


Fig. 327.

## SERVICE AND METER COCKS.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Figs. 323-324 . . . . .	\$0.55	.55	.65	.75	1.00	1.40	2.20	3.00	5.00	10.00	15.00
" 325 . . . . .	...	.65	.75	.85	1.20	1.70	2.60	3.60	5.75	11.50	17.00
" 326 . . . . .	...	.55	.65	.75	1.00	1.40	...	...	...	...	...
" 327 . . . . .	...	.75	.90	1.00	1.30	2.00	3.00	4.25	6.75	...	...

## EXTRA HEAVY SERVICE AND METER COCKS.

SIZE. . . IN.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Figs. 323-324 .	\$0.65	.65	.75	.85	1.20	1.70	2.60	3.60	6.00	11.50	17.00	28.00	40.00
" 325 . . . . .	...	.75	.85	.95	1.40	2.00	3.00	4.20	6.75	13.00	19.00	...	...
" 326 . . . . .	...	.65	.75	.85	1.20	1.70	...	...	...	...	...	...	...
" 327 . . . . .	...	.85	1.00	1.10	1.50	2.30	3.40	4.85	7.75	...	...	...	...

Square Head will always be furnished unless otherwise ordered.



AIR AND CYLINDER COCKS.

TEE HANDLE.

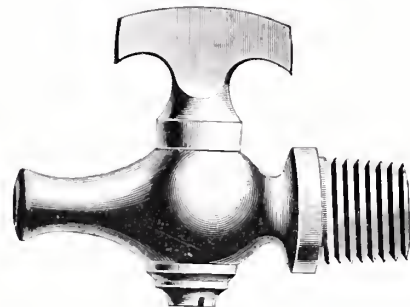


Fig. 328.

BIBB TEE HANDLE.

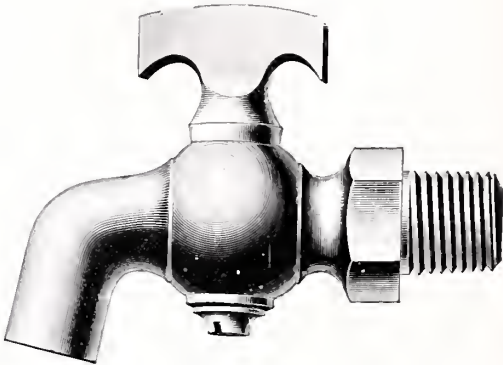


Fig. 329.

SIZE . . . . .	INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Fig. 328, Tee Handle . . . . .	\$0.40	.45	.50	.60	
" 329, Bibb Tee Handle . . . . .	.65	.70	.75	.85	

TEE HANDLE—DOUBLE END.

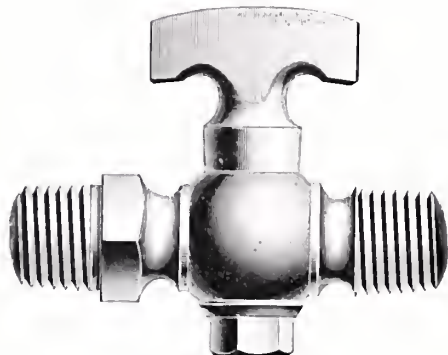


Fig. 330.

TEE HANDLE—FEMALE.

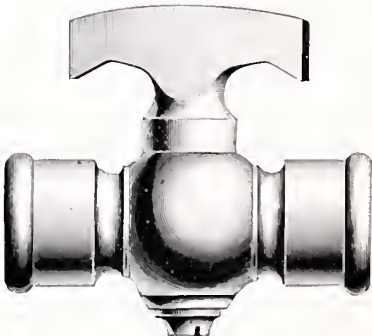


Fig. 331.

SIZE . . . . .	INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Fig. 330, Tee Handle, Double End . . . . .	\$0.45	.50	.60	.80	
" 331, " " Female . . . . .	.65	.70	. .	. .	. .

## AIR AND CYLINDER COCKS.

CONTINUED.

BIBB LEVER HANDLE.

LEVER HANDLE.

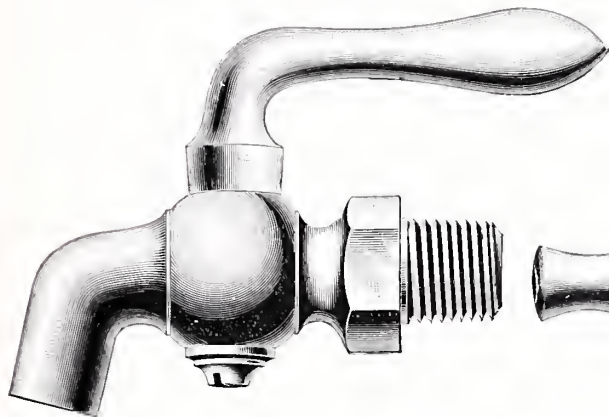


Fig. 332.

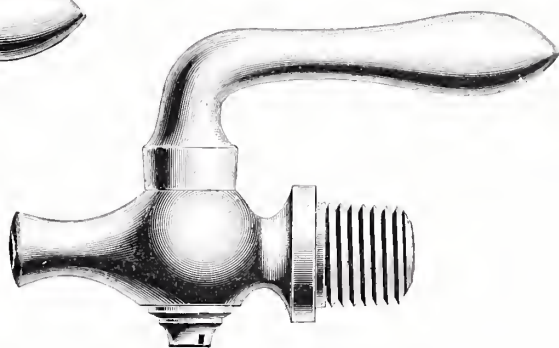


Fig. 333.

SIZE. . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Fig. 332 . . . . .	\$0.80	.85	.90	1.00
Fig. 333 . . . . .	.55	.60	.65	.75

LEVER HANDLE — FEMALE.

LEVER HANDLE — DOUBLE END.

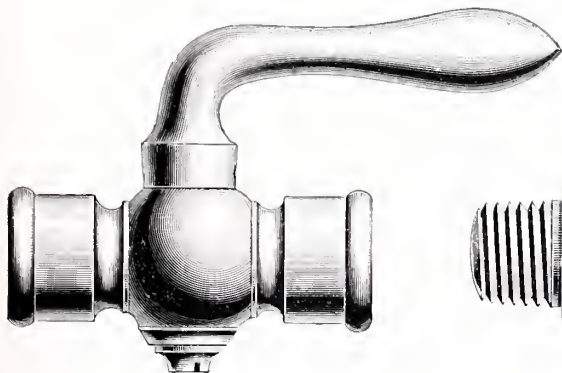


Fig. 334.

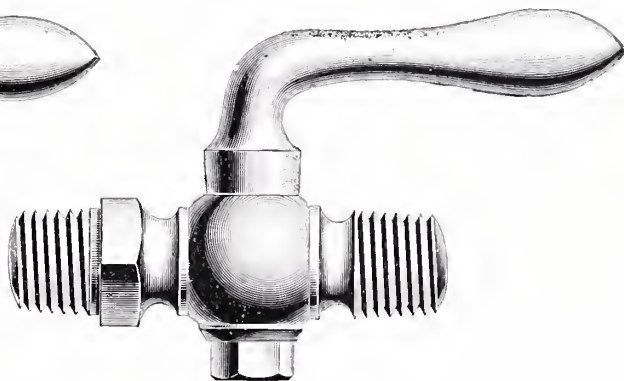


Fig. 335.

SIZE. . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Fig. 334 . . . . .	\$0.80	.85	. .	. .
Fig. 335 . . . . .	.60	.65	.75	.95

CYLINDER COCKS.

BIBB CYLINDER COCKS.

SINGLE THREAD.

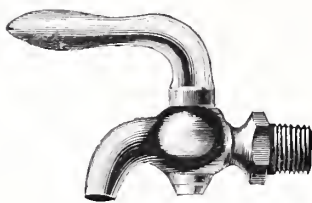


Fig. 336.

DOUBLE THREAD.

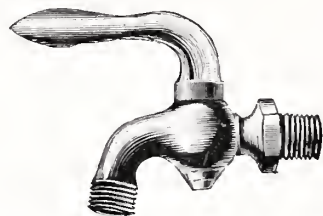


Fig. 337.

CYLINDER COCKS WITH UNIONS.

STRAIGHT UNION

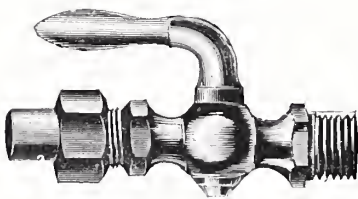


Fig. 338.

BENT UNION

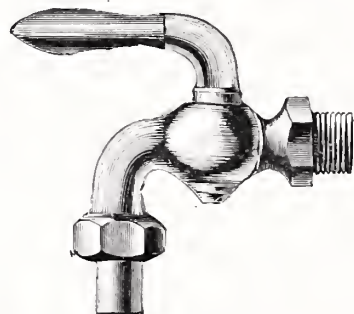


Fig. 339.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 336. Single Thread . . . . .	\$1.20	1.40	1.80	2.50
" 337. Double Thread . . . . .	1.25	1.50	2.00	3.00
" 338. Straight Union . . . . .	1.75	2.00	2.50	3.75
" 339. Bent Union . . . . .	1.75	2.00	2.50	3.75

FUSIBLE PLUGS.



Fig. 340.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 340 . . . . .	\$0.60	.75	1.00	1.25	1.75	2.50

RENEWABLE FUSIBLE PLUGS.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price . . . . .	\$1.10	1.35	1.75	2.50	3.25

# GAUGE COCKS—COMPRESSION.

No. 2 1-2.



Fig. 341.

No. 3.



Fig. 342.

No. 4.



Fig. 343.

No. 5.

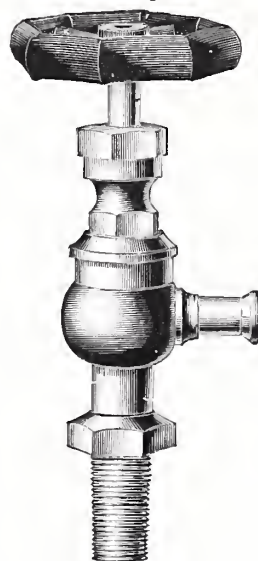


Fig. 344.

SIZE . . . . .	INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 341, No. 2 $\frac{1}{2}$ , Finished . . . . .		\$0.80	.85	.95
" 342, No. 3, " . . . . .		.95	1.00	1.10
" 343, No. 4, with Stuffing Box . . . . .		1.10	1.15	1.25
" 344, No. 5, with Hub . . . . .		1.50	1.60	1.75
Jenkins Seat with Cleaner . . . . .		1.50	1.60	1.75
Jenkins Seat without Cleaner . . . . .		1.00	1.10	1.30
Ashcroft's Self-Cleaning . . . . .		2.00	2.25	2.50



GAUGE COCKS.

REGISTER GAUGE COCK.

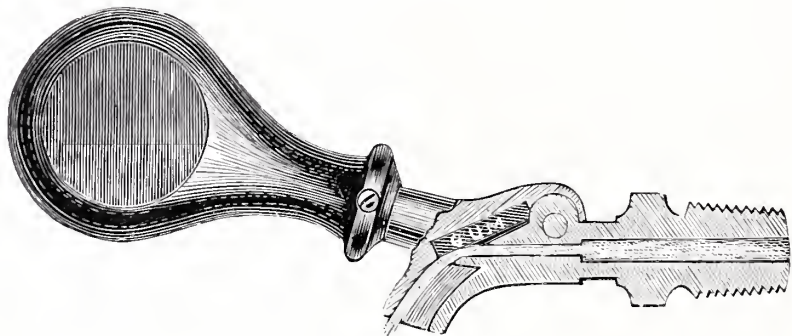


Fig. 345.

SIZE . . . . .		INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 345	Iron Ball . . . . .		\$1.00	1.00
"	Brass Ball . . . . .		1.75	1.75
"	Jenkins Ball Cock . . . . .		1.50	1.50

HAND CYLINDER OIL PUMP—TO SCREW ON SIDE OF CYLINDER.

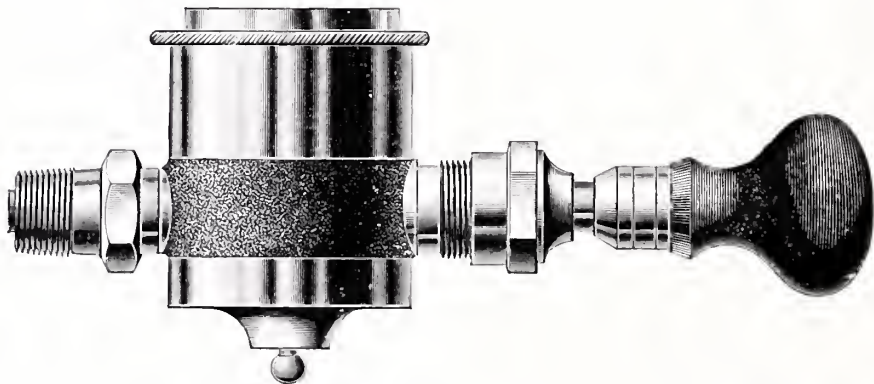


Fig. 346.

NUMBER OF PUMP . . . . .	1	2	3	4	5
Size of Bowl . . . . .	$2\frac{1}{4} \times 2\frac{1}{4}$	$2\frac{1}{2} \times 2\frac{1}{2}$	$2\frac{3}{4} \times 2\frac{3}{4}$	$3\frac{1}{2} \times 3\frac{1}{2}$	$4 \times 5$
Capacity . . . . . Pints,	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	1	2
Price . . . . .	\$3.50	4.25	5.00	7.50	12.00

The Valves in these Pumps are steam-tight, and will never need repairing unless broken by abuse.  
Bottom connection same price as Fig. 346.



LUBRICATORS.

PLAIN LUBRICATOR.

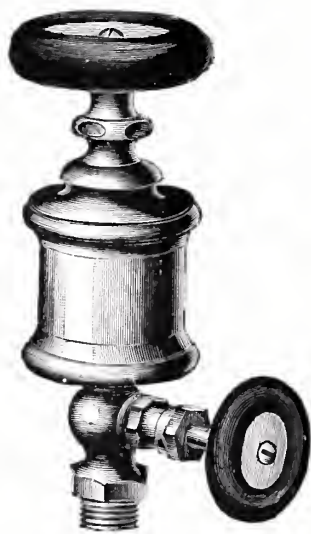


Fig. 348.

AUTOMATIC LUBRICATOR.

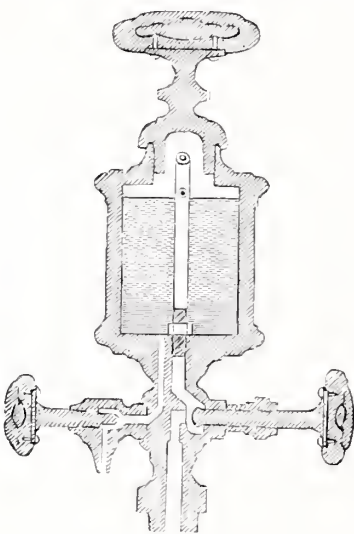


Fig. 349.

PLAIN LUBRICATORS.

DIAMETER BODY . . . . . INCHES.	1	1¼	1½	1¾	2	2¼	2½	3	3½
Threaded for Iron Pipe . . . . .	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Each . . . . .	\$2.00	2.20	2.40	2.60	2.90	3.25	3.75	4.75	7.00

AUTOMATIC LUBRICATORS.

DIAMETER BODY . . . . . INCHES.	1	1½	2	2½	3	3½	4	5	6
Capacity . . . . . Pints.	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	2	3	5
Plain . . . . . Each.	\$3.00	4.50	6.00	8.00	10.00	13.00	16.00	...	...
With Cross Handle, Heavy . . . . .	...	...	...	...	14.00	18.00	21.00	...	...
With Yoke Top, Heavy . . . . .	...	...	...	...	16.00	...	24.00	33.00	42.00

## LUBRICATORS—CONTINUED.

## CRANK PIN AND CROSS HEAD OILERS.

OIL RECEIVER.



Fig. 350.

TELESCOPIC WIPER.



Fig. 351.

Prices on Wiper System quoted on application with specifications.

## ELLIS AUTOMATIC LUBRICATORS.

OPEN SIGHT FEED.

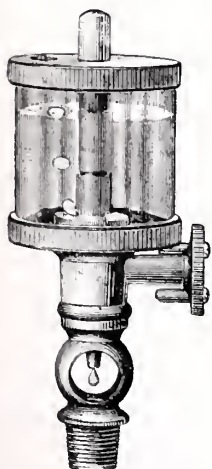


Fig. 352.

## PRICES PER DOZEN.

	To fit Standard Pipe Tap.	Brass.	Nickel.
No. 0 (1 oz.) . . . . .	$\frac{1}{4}$ inch.	\$20.00	22.00
No. 1 (2 oz.) . . . . .	$\frac{1}{4}$ inch.	21.00	23.00
No. 2 (3 $\frac{1}{2}$ oz.) . . . . .	$\frac{1}{4}$ inch.	23.50	25.25
No. 3 (5 oz.) . . . . .	$\frac{1}{4}$ inch.	27.00	30.00
No. 4 (7 oz.) . . . . .	$\frac{1}{4}$ inch.	31.50	35.00
No. 5 (9 oz.) . . . . .	$\frac{1}{4}$ inch.	42.00	45.00
No. 6 (12 oz.) . . . . .	$\frac{1}{4}$ inch.	53.25	56.00
One Pint . . . . .	$\frac{1}{4}$ inch.	90.00	94.00
One Quart . . . . .	$\frac{1}{4}$ inch.	105.00	109.00

Special threads without extra charge.

The Glass Sight Feeds, \$1.00 per dozen extra, net. We do not furnish

Glass Sight Feeds for No. 0.



SIGHT FEED LUBRICATORS.

WITH PATENT "UP-DROP" SIGHT FEED.

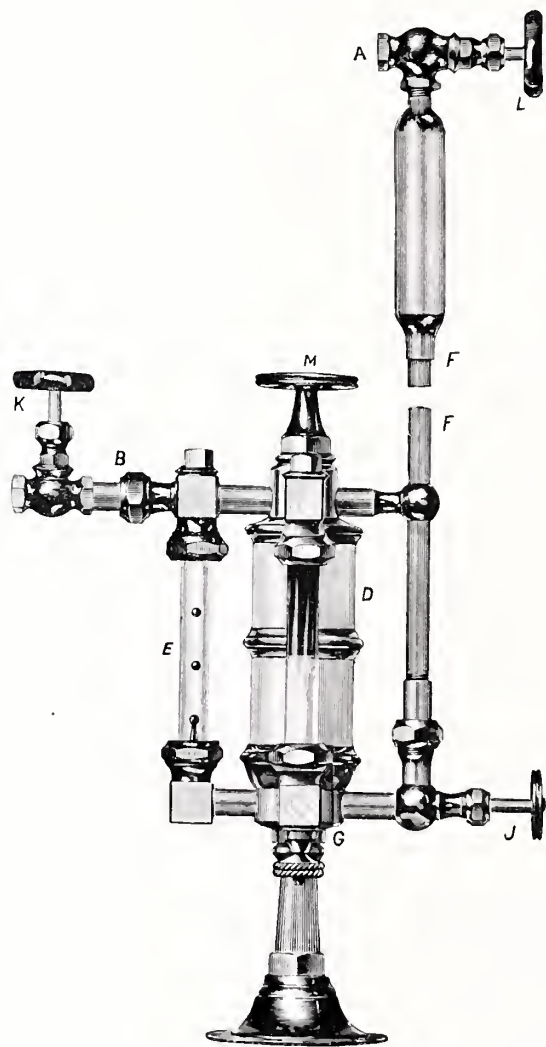


Fig. 353.

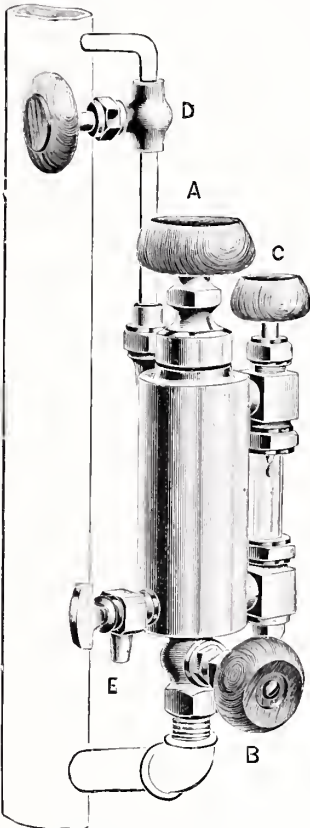
SEIBERT SIGHT FEED LUBRICATORS.

No. . . . .	1	2	3	4	5	6
Capacity . . . . . Pints.	$\frac{1}{3}$	$\frac{1}{2}$	1	2	4	8
For Engine H. P. . . . .	10	25	150	300	500	500
Finished Brass . . . Each.	\$20.00	25.00	35.00	50.00	70.00	90.00
Nickel Plated . . . . .	22.00	27.50	38.00	55.00	76.00	98.00

Seibert Lubricators No. 3 and larger are with stand.

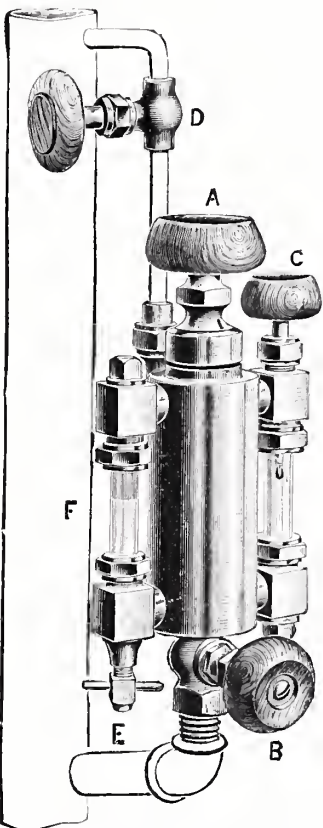
# IMPROVED "HANDY" DROP FEED LUBRICATORS.

FOR STATIONARY AND PORTABLE ENGINES OF ALL KINDS, STEAM PUMPS, ETC.



With Sight Glass only.

Fig. 354.



With Sight and Oil Gauge Glasses.

Fig. 355.

A — Filling Plug.    B — Bottom Steam Valve.    C — Regulating Valve.    D — Top Steam Valve.  
E — Waste Cock.    F — Gauge Glass.

## IMPROVED "HANDY" LUBRICATORS — Figs. 354 and 355.

SIZE . . . . . No.	1	2	3	4	5	6	7
Approximate Capacity in Pints . . . . .	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1½	2
Price with Sight Glass only . . . . .	88.00	10.00	14.00	16.00	18.00	24.00	30.00
Price with Sight and Oil Gauge Glass . . . . .							

In ordering these Lubricators, please use the term Improved "Handy."

ELLIS LUBRICATORS.

SINGLE OR DOUBLE CONNECTED.

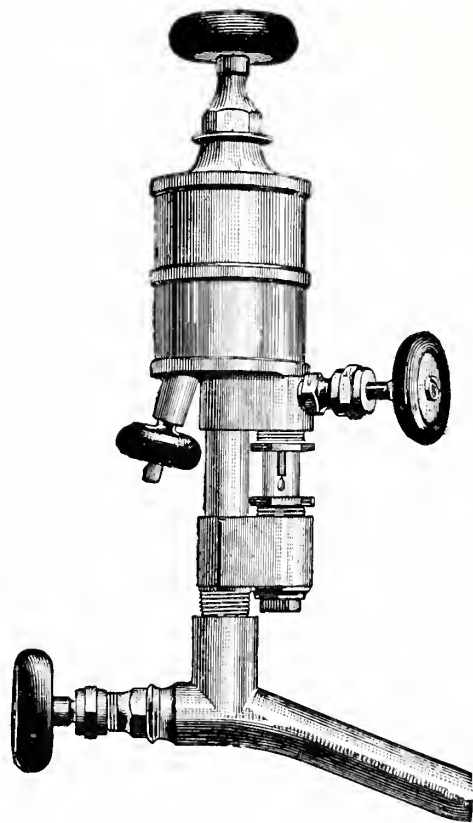


Fig. 356.

ELLIS LUBRICATORS.

Size. . . . .	Nickel Plated.	Brass.	Size of Glasses Used.
$\frac{1}{4}$ Pint . . . . .	89.00	6 00	$\frac{1}{2}$ X $1\frac{1}{4}$
$\frac{1}{2}$ " . . . . .	10.50	7 50	X $2\frac{1}{8}$
$\frac{3}{4}$ " . . . . .	13.50	10 00	X $2\frac{1}{2}$
1 " . . . . .	18.00	12.00	X $2\frac{3}{4}$
1 Quart . . . . .	24.00	16.00	X $2\frac{3}{4}$
2 " . . . . .	36 00	22.00	X $2\frac{3}{4}$
1 Gallon . . . . .	48.00	30.00	X $2\frac{3}{4}$

Fittings will be one-half inch standard unless otherwise ordered.

# CALLAHAN'S PATENT STEAM JOINT CEMENT.



Fig. 357.

This Cement differs from all others, in the fact that while it makes a perfectly tight and permanent flange or pipe joint, *it admits of easy separation of joints* when necessary, without breakage or trouble. Sets quickly.

Causes a large saving of money when used in place of Rubber or other material for hand-hole and man-hole gaskets.

Is a dry Powder. *Has three times the bulk of Red Lead.* Makes a joint far superior to Red Lead, and is better for Plumbers' and Steam Fitters' use.

Mix with boiled Linseed Oil and use same in every way as Red Lead.

## PACKAGES.

Cement put up in pails of 25 and 50 lbs., kegs of 75 and 150 lbs., in barrels of 600 lbs. and casks of 1200 lbs.

Price per lb., 30 cents.

## UNION RINGS.

We carry in stock all sizes Union Rings from  $\frac{3}{8}$  inch upwards. These Rings are made from Jenkins Packing.

Price per lb., \$1.25.

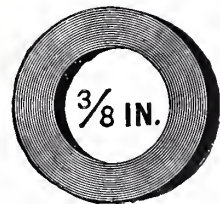


Fig. 358.

## CYLINDRICAL GLASSES, CORK WASHERS AND SIGHT FEED PROTECTORS.

DIAMETER OF GLASS . . . . . INCHES.	1	1 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	2	2 $\frac{3}{8}$	2 $\frac{1}{2}$	3 $\frac{1}{8}$	3 $\frac{1}{2}$	4 $\frac{1}{4}$	5
Height of Glass . . . . . Inches.	$\frac{7}{8}$	1	1 $\frac{1}{8}$	1 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{1}{4}$	2 $\frac{5}{8}$	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$
Price of Glasses, per dozen, net . . . . .	\$.60	.72	.84	.96	1.20	1.50	1.80	2.40	3.00	3.60	4.80	7.20
Price of Cork Washers, per dozen sets, net . .	.15	.20	.25	.30	.35	.40	.50	.60	.80	1.20	1.80	3.00
Price of Glass Sight Feed Protectors, per doz. net . . . . .	.50	.50	.50	.50	.50	.50	.75	.75	.75	.75	.75	.75

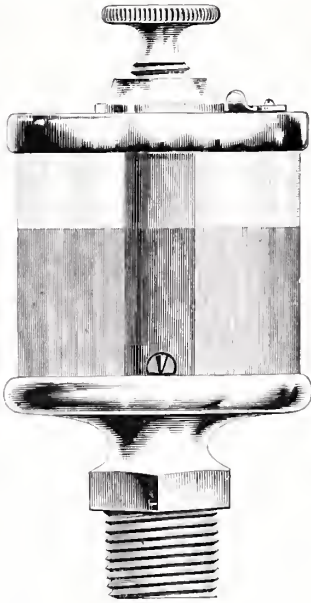


ENGINE OILERS.

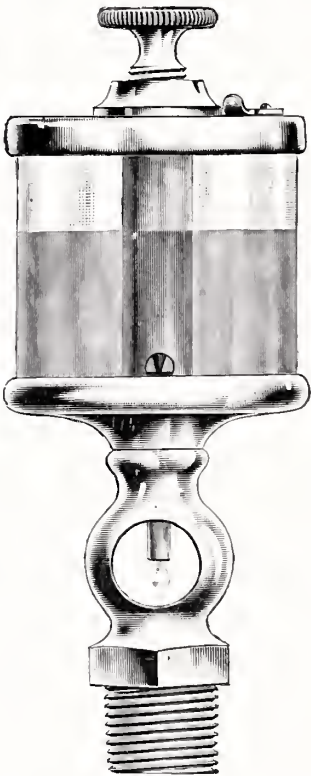
SKELETON FRAME.

OUTSIDE ADJUSTMENT.  
PLAIN TAPER SCREW FEED.

TAPER SCREW AND SIGHT FEED.



Series 140.  
Fig. 359.



Series 160.  
Fig. 360.

PLAIN TAPER SCREW FEED—Fig. 359.  
Series 140.

Trade Number.	Height of Cup, Inches.	Width of Cup, Complete, Inches.	Capacity in Ounces	Size of Shank, Pipe Thr'd, In.	Price per Doz.
141	2 $\frac{3}{4}$	1 $\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{8}$	\$8.00
142	3	1 $\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{8}$	9.00
143	3 $\frac{1}{4}$	1 $\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{8}$	10.00
144	3 $\frac{3}{4}$	1 $\frac{3}{8}$	1	$\frac{1}{4}$	11.00
145	4	1 $\frac{7}{8}$	1 $\frac{1}{2}$	$\frac{1}{4}$	12.00
146	4 $\frac{1}{4}$	2 $\frac{1}{8}$	2	$\frac{3}{8}$	14.00
147	4 $\frac{3}{4}$	2 $\frac{1}{8}$	4	$\frac{1}{2}$	17.00
148	5 $\frac{1}{4}$	2 $\frac{3}{8}$	6	$\frac{3}{4}$	21.00
149	6 $\frac{1}{4}$	3 $\frac{1}{8}$	10	$\frac{1}{2}$	27.00
150	6 $\frac{3}{4}$	3 $\frac{3}{8}$	15	$\frac{3}{4}$	36.00
151	7 $\frac{1}{4}$	4 $\frac{1}{8}$	24	$\frac{1}{2}$	54.00
152	8 $\frac{1}{4}$	4 $\frac{3}{8}$	36	$\frac{3}{4}$	84.00

TAPER SCREW, FILLING HOLE AND BALL SHANK SIGHT FEED—Fig. 360.  
Series 160.

Trade Number.	Height of Cup, Inches.	Width of Cup, Complete, Inches.	Capacity in Ounces	Size of Shank, Pipe Thr'd, In.	Price per Doz.
161	. .	. .	. .	. .	. .
162	. .	. .	. .	. .	. .
163	. .	. .	. .	. .	. .
164	4 $\frac{1}{4}$	1 $\frac{3}{8}$	1	$\frac{1}{4}$	\$13.00
165	4 $\frac{3}{4}$	1 $\frac{7}{8}$	1 $\frac{1}{2}$	$\frac{1}{4}$	15.00
166	5 $\frac{1}{8}$	2 $\frac{1}{8}$	2	$\frac{3}{8}$	17.00
167	5 $\frac{3}{8}$	2 $\frac{3}{8}$	4	$\frac{1}{2}$	20.60
168	6 $\frac{3}{4}$	2 $\frac{7}{8}$	6	$\frac{3}{8}$	24.00
169	7 $\frac{1}{4}$	3 $\frac{1}{8}$	10	$\frac{1}{2}$	32.00
170	7 $\frac{3}{4}$	3 $\frac{3}{8}$	15	$\frac{3}{4}$	44.00
171	8 $\frac{1}{4}$	4 $\frac{1}{8}$	24	$\frac{1}{2}$	60.00
172	9 $\frac{1}{4}$	4 $\frac{3}{8}$	36	$\frac{3}{4}$	96.00

Order by Figure and Trade Number.

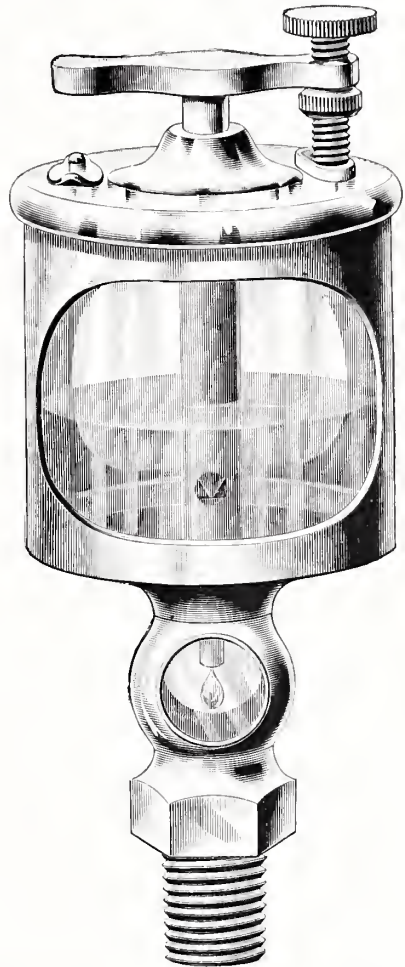
# ENGINE OILERS — CONTINUED.

PLAIN TAPER SCREW FEED  
OUTSIDE REGULATION.



Series 220.  
Fig. 361.

WITH STOP AND SIGHT FEED.



Series 260.  
Fig. 362.

PLAIN TAPER SCREW FEED — Fig. 361.  
Series 220.

Trade No.	Height of Cup, Complete, Inches.	Width of Cup, Complete, Inches.	Capacity in Ounces	Size of Shank, Pipe Thr'd, In.	Price per Doz.
221	3 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	\$10.00
222	3 $\frac{1}{2}$	1 $\frac{3}{8}$	1 $\frac{3}{8}$	1 $\frac{3}{8}$	12.00
223	3 $\frac{3}{8}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	1 $\frac{1}{2}$	13.00
224	4	1 $\frac{3}{4}$	1	1 $\frac{3}{4}$	14.00
225	4 $\frac{1}{8}$	2	1 $\frac{1}{2}$	1 $\frac{1}{2}$	16.00
226	4 $\frac{1}{4}$	2 $\frac{1}{8}$	2	1 $\frac{3}{8}$	20.00
227	5 $\frac{1}{4}$	2 $\frac{3}{8}$	4	1 $\frac{3}{8}$	24.00
228	5 $\frac{3}{8}$	3	6	1 $\frac{3}{8}$	30.00
229	6 $\frac{1}{8}$	3 $\frac{1}{2}$	10	1 $\frac{1}{2}$	40.00
230	7	3 $\frac{3}{4}$	15	1 $\frac{1}{2}$	54.00
231	7 $\frac{3}{4}$	4 $\frac{3}{8}$	24	1 $\frac{1}{2}$	84.00
232	8 $\frac{1}{2}$	5	36	1 $\frac{1}{2}$	120.00

STOP AND SIGHT FEED — Fig. 362.  
Series 260.

Trade No.	Height of Cup, Complete, Inches.	Width of Cup, Complete, Inches.	Capacity in Ounces	Size of Shank, Pipe Thr'd, In.	Price per Doz.
264	4 $\frac{1}{2}$	1 $\frac{3}{4}$	1	1 $\frac{1}{4}$	\$21.00
265	4 $\frac{3}{4}$	2	1 $\frac{1}{2}$	1 $\frac{1}{4}$	27.00
266	5 $\frac{1}{2}$	2 $\frac{1}{8}$	2	1 $\frac{3}{8}$	30.00
267	6 $\frac{1}{4}$	2 $\frac{3}{8}$	4	1 $\frac{3}{8}$	33.00
268	6 $\frac{3}{8}$	3	6	1 $\frac{3}{8}$	40.00
269	7 $\frac{1}{8}$	3 $\frac{1}{2}$	10	1 $\frac{1}{2}$	54.00
270	8	3 $\frac{3}{4}$	15	1 $\frac{1}{2}$	72.00
271	8 $\frac{3}{4}$	4 $\frac{3}{8}$	24	1 $\frac{1}{2}$	108.00
272	9 $\frac{1}{2}$	5	36	1 $\frac{1}{2}$	168.00
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.

Fig. 361 also made Sight Feed.

Order by Figure and Trade Number.

# NATHAN GLASS OILERS.

No. 9.

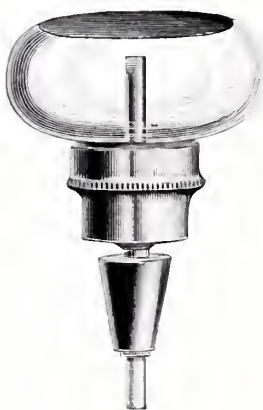


Fig. 363.

No. 10.

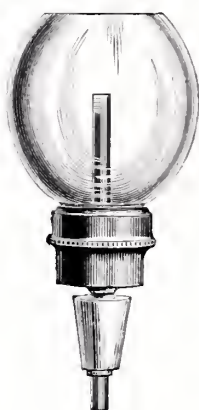


Fig. 364.

No. 10 W. B.

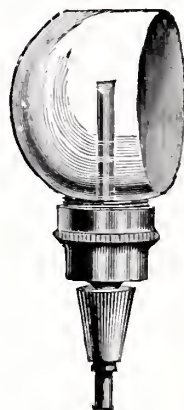


Fig. 365.

No. 13 W. B.



Fig. 366.

Nos. 15 and 22.



Fig. 367.

Nos. 24 and 26.

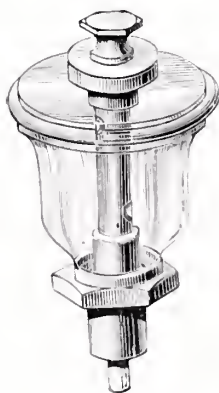


Fig. 368.

A to D.



Fig. 369.

Nos. 20 to 100—  
SHELL CASED.

Fig. 370.

## PRICE-LIST

# NATHAN GLASS OILERS.

Nos. 000 to 13— Figs. 363, 364, 365 and 366.

No. . . . .	000	00	0	3	9	9 wb	10	10wb	11	12	13	13wb
Diameter . . . Inches.	$1\frac{1}{2}$	$1\frac{1}{8}$	$2\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{4}$	2	$2\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$1\frac{3}{4}$
Height . . . . . "	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$3\frac{1}{4}$	$4\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{2}$
Capacity . . . Ounces.	$\frac{3}{4}$	$\frac{3}{4}$	1	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$3\frac{1}{2}$	3	$1\frac{1}{2}$	$3\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Price per Dozen . . .	\$5.00	4.50	5.00	4.50	4.50	4.50	4.50	4.50	7.00	7.00	7.50	7.50

Nos. 14 to 26 — Figs. 367 and 368.

No. . . . .	14	15	16	18	22	23	24	25	26
Diameter . . . . . Inches.	$2\frac{5}{8}$	$2\frac{5}{8}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{4}$	$2\frac{1}{4}$	3	$1\frac{3}{4}$
Height . . . . . "	4	4	2	$4\frac{1}{2}$	$2\frac{5}{8}$	$1\frac{5}{8}$	$3\frac{5}{8}$	6	$2\frac{3}{4}$
Capacity . . . . . Ounces.	$3\frac{1}{2}$	$3\frac{1}{2}$	$\frac{3}{4}$	$3\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$2\frac{1}{4}$	8	$\frac{3}{4}$
Price per Dozen . . . . .	\$7.50	10.50	7.00	18.00	9.00	9.00	10.50	18.00	9.00

A to D — Fig. 369.

No. . . . .	A	b	B	C	D
Diameter . . . . . Inches.	$1\frac{5}{8}$	2	$2\frac{1}{4}$	$2\frac{1}{8}$	$3\frac{1}{2}$
Height . . . . . "	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{4}$
Capacity . . . . . Ounces.	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	3	8
Price per Dozen . . . . .	\$8.00	10.00	12.00	16.00	20.00

SHELL CASED — Fig. 370.

No. . . . .	20	21	28	36	42	60	72
Diameter . . . . . Inches.	1	$1\frac{1}{8}$	$1\frac{1}{2}$	2	2	$2\frac{3}{8}$	3
Height . . . . . "	$1\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{1}{2}$	4	$4\frac{1}{4}$	$4\frac{1}{2}$
Capacity . . . . . Ounces.	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	1	$1\frac{1}{4}$	$2\frac{1}{2}$	$4\frac{1}{2}$
Price per Dozen . . . . .	12.00	18.00	27.00	36.00	36.00	48.00	60.00

Order by Figure and Trade Number.



OIL CUPS.

LEVER HANDLE.



Fig. 371.

ELBOW SHANK.

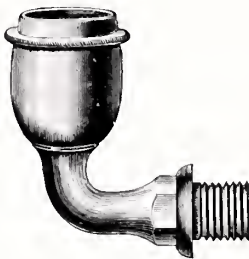


Fig. 372.

TEE HANDLE.



Fig. 373.

No. . . . .	1	2	3	4	5
Diameter Body . . . . . Inches.	1	1½	1½	2	2½
Threaded for Iron Pipe . . . . .	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$
Fig. 371 . . . . . Each	\$1.00	1.50	2.00	3.00	3.75
Fig. 372 . . . . . “	.70	1.00	1.40	2.30	. .
Fig. 373 . . . . . “	1.35	1.60	2.20	3.25	4.00

PLAIN.



Fig. 374.

LOCOMOTIVE.



Fig. 375.

HINGE LID.



Fig. 376.

No. . . . .	00	0	0½	1	1½	2	3	4	5	6	7	8
Diameter Body . . . In.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1½	1½	1½	1¾	2	2½	2½	2¾
Threaded for Iron Pipe	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Fig. 374 . . . . . Each	\$0.25	.30	.35	.40	.50	.60	.90	1.25	1.75	2.25	2.75	3.50
Fig. 375 . . . . . “	. .	.35	.40	.60	.75	1.00	1.50	2.00	. .	. .	. .	. .
Fig. 376 . . . . . “	. .	. .	.85	1.20	1.60	. .	2.70	. .	. .	. .	. .	. .

# OILERS, FILLERS AND LAMPS.

MALLEABLE  
IRON OILER.



Fig. 377.

RAILROAD OILER.

ENGINEERS' FILLER.



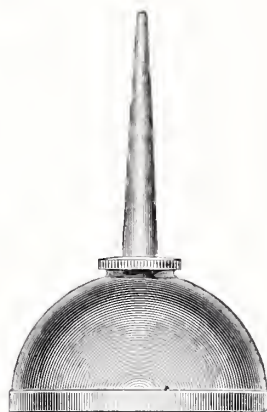
Fig. 378.

STEEL TALLOW POTS.



Fig. 380.

BRASS AND STEEL  
OILER.



Nos. 12 to 14 B.

Fig. 379.

ENGINEERS' SETS.

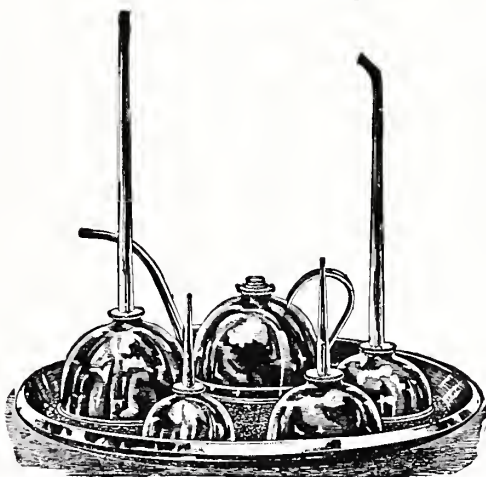
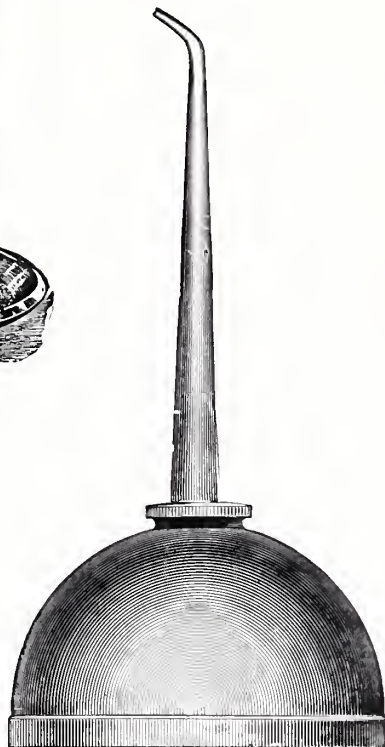


Fig. 381.

BRASS AND STEEL  
OILER.



Nos. 15 and 16.

Fig. 384.

BRASS AND ALCOHOL LAMP.

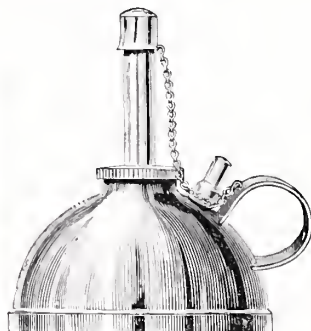


Fig. 383.

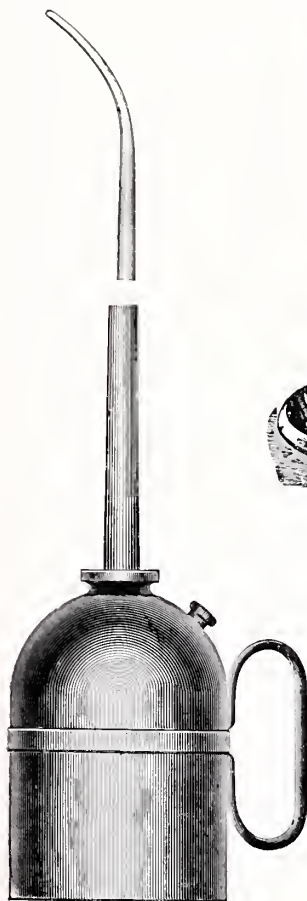


Fig. 382.

PRICE-LIST  
OILERS, FILLERS AND LAMPS.

MALLEABLE — Fig. 377.

Trade No.	Per Doz.
1 . . . . .	\$3.60
2 . . . . .	4.00
3 . . . . .	4.40

ENGINEERS' FILLERS — Fig. 378.

TRADE NO. . . . .	19	19a	210	211	190	200	201
Diameter . . . . . Inches.	4½	4¾	5	6	4¾	5	6
Height . . . . . “	3½	4	5	6	4	5	6
Capacity . . . . . Pints.	1	1½	2	4	1½	2	4
Steel . . . . . Per Doz.	\$14.00	17.00	20.00	24.00	..	..	..
Brass . . . . . “	..	..	..	..	22.00	30.00	34.00

Trade No.	STEEL AND BRASS—Figs. 379 and 384.	Steel per Doz.	Brass per Doz.
12	2¾ inch diameter, 2½ inch nozzle . . . . .	\$4.50	6.50
13	3⅝ “ “ 3 “ “ . . . . .	5.50	8.00
14	3⅝ “ “ 9 “ “ . . . . .	6.50	9.20
14a	3¾ “ “ 3 “ “ . . . . .	7.50	..
14b	3¾ “ “ 9 “ “ . . . . .	8.50	..
15	4¼ “ “ 3 “ “ . . . . .	9.25	12.00
16	4¼ “ “ 9 “ “ . . . . .	10.50	14.00

TALLOW POTS — Fig. 380.

Trade No.	Per Doz.
212. Quart Steel Tallow Pots, 5 inch diameter, 5 inch high . . . . .	\$21.00
213. 2-Quart Steel Tallow Pots, 6 inch diameter, 6 inch high . . . . .	25.00

STEAMBOAT AND ENGINEERS' SETS — Fig. 381.

Trade No.	ENGINEERS' SETS.	Per Set.	Trade No.	STEAMBOAT SETS.	Per Set.
30	Five Pieces, Brass . . . . .	\$6.00	70	Five Pieces, Brass . . . . .	\$7.00
40	Six “ “ . . . . .	9.00	80	Six “ “ . . . . .	10.00
50	Five “ Nickel . . . . .	8.00	90	Five “ Nickel . . . . .	9.00
60	Six “ “ . . . . .	11.00	100	Six “ “ . . . . .	12.00

Trade No.	RAILROAD OILERS— Fig. 382.	Steel per Doz.	Brass per Doz.
10	Pint, 3⅝ inch Diameter, 5 inch high, 12 inch nozzle . . . . .	\$14.00	\$18.00
11	Quart, 4¼ “ “ 6 “ “ 18 “ “ . . . . .	18.00	21.00
11a	2 “ 5 “ “ 8 “ “ 18 “ “ . . . . .	20.00	24.00

ALCOHOL LAMPS — Fig. 383.

	Per Doz.
Polished Brass . . . . .	\$7.50
Nickel Plated . . . . .	10.00

WHISTLES.

SINGLE BELL CHIME WHISTLES.



Fig. 385.

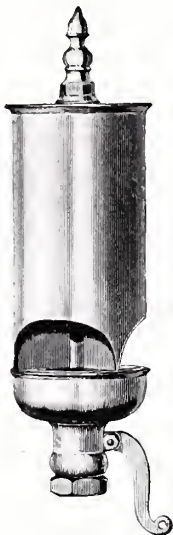


Fig. 386.

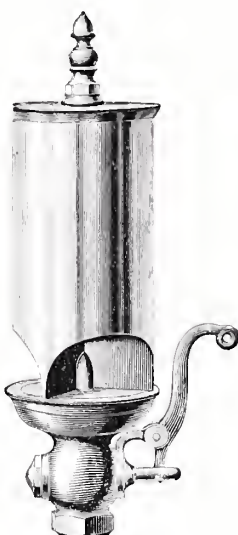


Fig. 387.

SIZE OF STEAM PIPE . . INCHES.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{1}{2}$
Diameter of Bell . . . . Inches.	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	8	10
Fig. 385 . . . . .	1.70	2.00	2.50	3.25	4.50	6.00	8.50	11.00	18.00	24.00	65.00	125.00
Figs. 386 and 387 . . . . .	3.50	3.75	4.00	4.75	6.50	8.00	11.00	14.00	22.00	30.00	80.00	175.00

WITHOUT VALVE.

WITH UPRIGHT VALVE.

WITH SIDE VALVE.



Fig. 388.



Fig. 389.

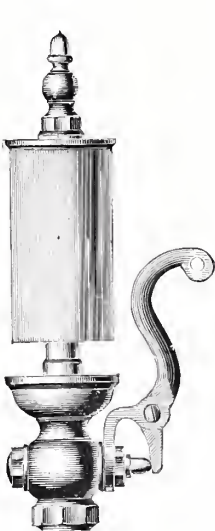


Fig. 390.

SIZE OF STEAM PIPE . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Diameter of Bell . . . . Inches.	2	3	4	5	6	8	10	12
Fig. 388 . . . . .	85.00	8.00	14.00	22.00	30.00	70.00	110.00	150.00
" 389 . . . . .	7.00	11.00	18.00	28.00	38.00	90.00	140.00	200.00
" 390 . . . . .	2.25	2.75	3.25	4.00	5.50	9.50	20.00	30.00



## FRAMES FOR SETS OF INSTRUMENTS.

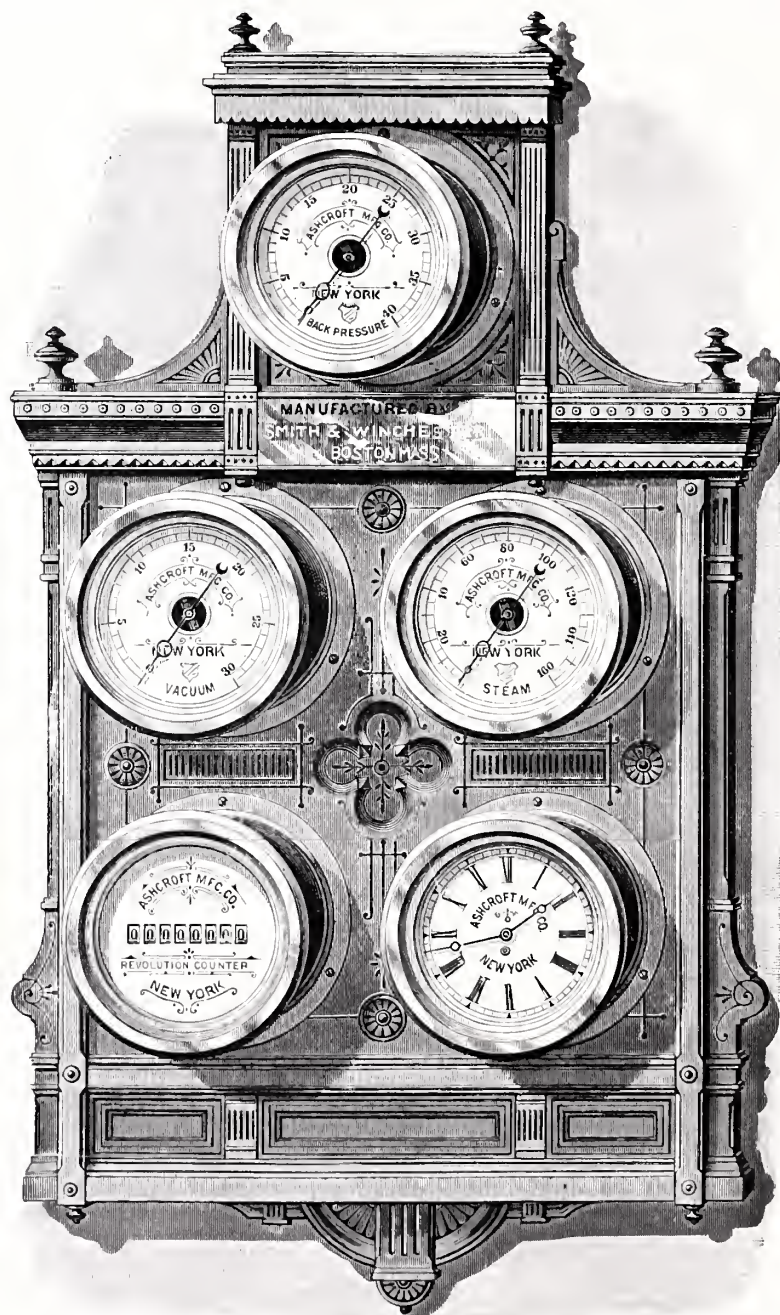


Fig. 391.

This cut represents one of many designs of an ornamental wooden frame on which to mount instruments. They cost from \$15.00 upward, according to size, design, and finish. Special Metal Frames and Name Plates to order. Metal Pedestal Mountings, for single instrument, \$5.00 and upward. The gauges shown above having blind back connections present a neat and attractive appearance. Orders should state whether blind back or the usual front bottom connections are wanted.

For prices of instruments, see their respective lists.

# ASHCROFT GAUGES.

## SINGLE BOURDON SPRING PRESSURE AND VACUUM GAUGES.

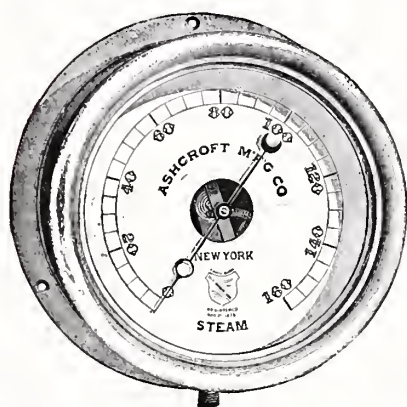


Fig. 392.

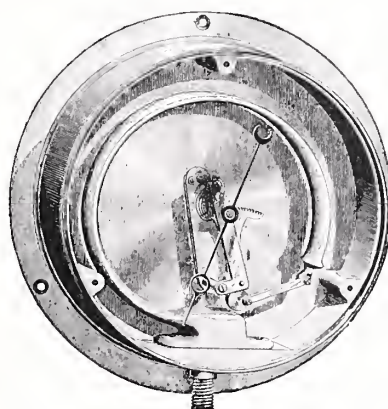


Fig. 393.

Every Gauge Stamped with Trade Mark.

Springs are made of Solid Drawn Seamless Tube.

## GAUGES OF 300 POUNDS PRESSURE OR LESS, INCLUDING COCK.

### BRASS CASE.

12 inch dial	\$75.00
10 " "	40.00
8 $\frac{1}{2}$ " "	30.00
6 $\frac{3}{4}$ " "	20.00
6 " "	16.00
5 $\frac{1}{2}$ " "	12.00
5 " "	11.00
4 $\frac{1}{2}$ " "	10.00
3 $\frac{1}{2}$ " "	9.00
3 " " or smaller	8.00

### IRON CASE — JAPANNED.

12 inch dial	\$50.00
10 " "	32.00
8 $\frac{1}{2}$ " "	22.00
6 $\frac{3}{4}$ " "	16.00
6 " "	13.00
5 $\frac{1}{2}$ " "	10.00
5 " "	8.00
4 $\frac{1}{2}$ " "	8.00
3 $\frac{1}{2}$ " "	7.00
3 " " or smaller	6.00

Nickel Plating extra. Prices on page 117.

ASHCROFT GAUGES.

CONTINUED.

COMBINATION WATER PRESSURE AND AMMONIA GAUGES

COMBINATION WATER PRESSURE GAUGE.

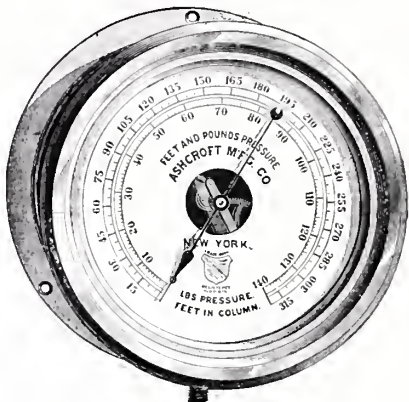


Fig. 394.

WATER PRESSURE GAUGE, INCLUDING COCK—Fig. 394.

BRASS CASE.				IRON CASE—JAPANNED.			
12	inch	dial	\$80.00	12	inch	dial	\$60.00
10	"	"	50.00	10	"	"	40.00
8½	"	"	40.00	8½	"	"	30.00
6¾	"	"	25.00	6¾	"	"	20.00
6	"	"	20.00	6	"	"	16.00
5½	"	"	16.00	5½	"	"	14.00

Nickel Plating extra. Prices page 117.

State, in ordering, the highest working pressure or feet to be recorded.  
This Gauge has two sets of graduations, one showing pounds pressure to the square inch, the other showing height in feet of water in column.  
It is used to show pressures developed by pumps, in mines, working against not only head, but resistance of friction and turns in pipes.

AMMONIA GAUGES.

IRON CASES AND RINGS.

8½	inch	dial	\$45.00
6¾	"	"	40.00
6	"	"	35.00

In ordering, state whether a compound scale showing pressure and vacuum or pressure only is needed.  
If wanted with connection at back, it has to be so stated in ordering.

ASHCROFT GAUGES.

CONTINUED.

HYDRAULIC GAUGE AND REVOLUTION COUNTER.

HYDRAULIC GAUGE.

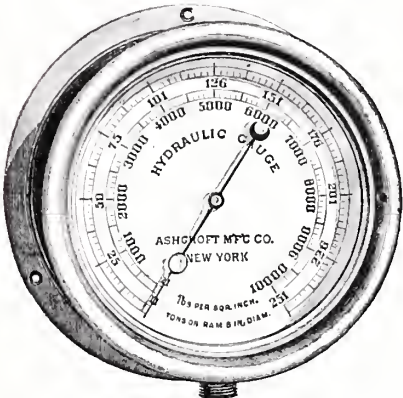


Fig. 395.

REVOLUTION COUNTER.



Fig. 396.

HYDRAULIC GAUGE — Fig. 395.

BRASS CASE.

12 inch dial	\$125.00
10 " "	100.00
8 1/2 " "	80.00
6 3/4 " "	60.00
6 " "	40.00

IRON CASE—JAPANNED.

12 inch dial	\$110.00
10 " "	90.00
8 1/2 " "	70.00
6 3/4 " "	50.00
6 " "	35.00

No extra charge for marking tons on dials. Nickel Plating extra. Prices on page 117. Hydraulic Check Valves and Cocks extra.

Hydraulic Cock for Gauge	\$6.00
Hydraulic Check Valve for Gauge	3.50

In ordering, state maximum pressure required.  
If dial is to show pressure in tons on ram, give exact diameter of ram.  
With Independent Maximum Pressure Registering Hand, \$5.00 extra, net.  
In these gauges a heavy STEEL TUBE bored from a solid bar is substituted for the seamless drawn tube, for all pressures over 800 pounds to the square inch.

REVOLUTION COUNTER — Fig. 396.

ROUND CASE — BRASS.

12 inch dial, 8 wheels	\$110.00
10 " " 8 " "	95.00
8 1/2 " " 8 " "	80.00
12 " " 6 " "	100.00
10 " " 6 " "	85.00
8 1/2 " " 6 " "	70.00
6 3/4 " " 6 " "	60.00



ASHCROFT GAUGES.

CONTINUED.

LOCOMOTIVE AND STEAM FIRE ENGINE GAUGES.

IMPROVED DOUBLE BOURDON SPRING AND PATENT  
ELASTIC PACKING RING.



Fig. 397.

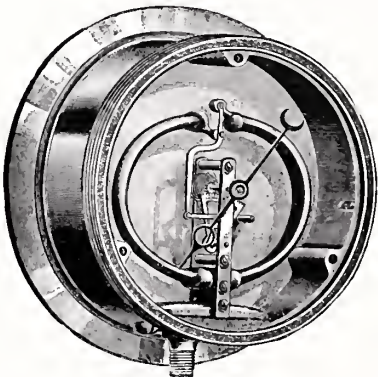


Fig. 398.

INCLUDING COCK.

BRASS CASE.

12 inch dial . . . . .	\$80.00
10 " " . . . . .	45.00
8½ " " . . . . .	34.00
6¾ " " . . . . .	22.00
6 " " . . . . .	18.00
5½ " " . . . . .	14.00
5 " " . . . . .	13.00
4½ " " . . . . .	12.00

IRON CASE — JAPANNED.

12 inch dial . . . . .	\$55.00
10 " " . . . . .	37.00
8½ " " . . . . .	25.00
6¾ " " . . . . .	18.00
6 " " . . . . .	15.00
5½ " " . . . . .	12.00
5 " " . . . . .	11.00
4½ " " . . . . .	10.00

ASHCROFT GAUGES.

CONTINUED.

COMPOUND PRESSURE AND VACUUM GAUGES.

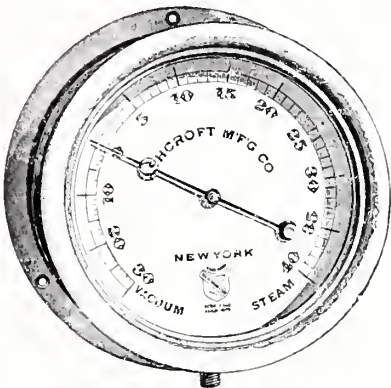


Fig. 399.

INCLUDING COCK.

BRASS CASE.		IRON CASE—JAPANNED.	
12 inch dial	\$80.00	12 inch dial	\$60.00
10 " "	50.00	10 " "	40.00
8½ " "	40.00	8½ " "	30.00
6¾ " "	25.00	6¾ " "	20.00
6 " "	20.00	6 " "	16.00
5½ " "	16.00	5½ " "	14.00
4½ " "	14.00	4½ " "	12.00
3½ " "	12.00	3½ " "	10.00

EXTRA FOR NICKEL PLATING GAUGES.

Size Dial.	N. P. Ring.	N. P. Case and Ring.	Size Dial.	N. P. Ring.	N. P. Case and Ring.
12 inches	\$1.50	4.00	5½ inches	\$0.25	1.25
10 " "	1.00	3.00	5 " "	.20	1.00
8½ " "	.75	2.50	4½ " "	.20	1.00
6¾ " "	.60	2.00	3½ " "	.18	.75
6 " "	.50	1.50	2½ " "	.15	.60

CONSOLIDATED SAFETY VALVES.

BRASS—PORTABLE.      BRASS—PORTABLE—SIDE OUTLET.      SECTIONAL VIEW.



Fig. 400.

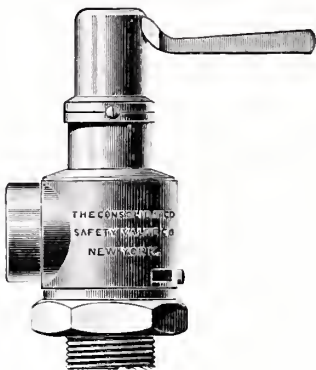


Fig. 401.

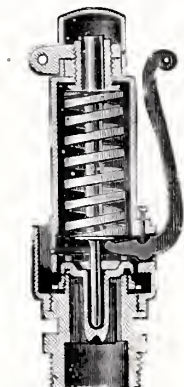


Fig. 402.

STATIONARY AND MARINE — NICKEL SEAT.      STATIONARY AND MARINE — BRASS SEAT.      WATER RELIEF VALVE.



Fig. 403.

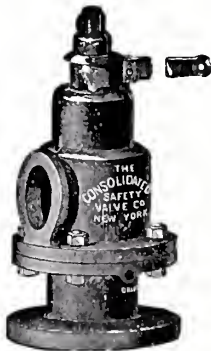


Fig. 404.



Fig. 405.

Figs. 400, 401 and 402.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Horse Power of Boiler . . . . .	8	12	18	20	30	40
Fig. 400, all Brass . . . . . Each.	\$8.00	10.00	15.00	20.00	30.00	40.00
" 401 " . . . . . "	10.00	13.00	18.00	23.00	...	...

Figs. 403, 404 and 405.

SIZE . . . . . INCHES.	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6
Horse Power of Boiler . . . . .	8 to 10	10 to 15	20 to 30	35 to 50	60 to 75	75 to 100	100 to 125	125 to 150	150 to 175	175 to 200	300
Fig. 403 . . . . . Each.	\$15.00	20.00	30.00	40.00	55.00	75.00	87.00	100.00	125.00	150.00	175.00
" 404 . . . . . "	...	...	...	35.00	45.00	60.00	75.00	90.00	95.00	100.00	150.00
" 405 . . . . . "	...	...	30.00	40.00	55.00	75.00	85.00	100.00	...	125.00	150.00

# CROSBY POP SAFETY AND WATER RELIEF VALVES.

MARINE — YACHT STYLE. STATIONARY OR MARINE  
— FLANGED BASE.

PORTABLE AND FARM  
ENGINE STYLE.

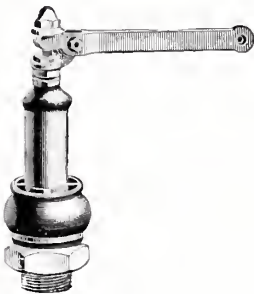


Fig. 406.

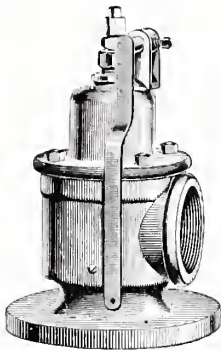


Fig. 407.



Fig. 408.

## WATER RELIEF VALVES.

UNDERWRITER.

STANDARD.



Fig. 409.



Fig. 410.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6
Horse Power . . . . .		5	10	20	30	40	75	100	125	150	175	200	200 and up.
Fig. 406 . . . . .		10.00	12.00	15.00	20.00	30.00	50.00	90.00	125.00	150.00	175.00	200.00	200.00
" 407. Plain . . . . .						30.00	50.00	65.00	80.00	100.00	115.00	125.00	180.00
" 407. Nickel Seated . . . . .						38.00	60.00	77.00	94.00	116.00	133.00	145.00	210.00
" 407. Lock-Up . . . . .						35.00	55.00	75.00	90.00	110.00	125.00	135.00	200.00
" 407. " Nickel Seated . . . . .						43.00	65.00	87.00	104.00	126.00	143.00	155.00	230.00
" 407. Ex. Heavy Plain . . . . .							65.00	80.00	100.00			140.00	200.00
" 407. " Nickel Plated . . . . .							77.00	94.00	116.00			160.00	230.00
" 407. Ex. Heavy Lock-Up . . . . .							75.00	90.00	110.00			150.00	220.00
" 407. Ex. Heavy Lock-Up Nickel Pltd . . . . .							87.00	104.00	126.00			170.00	250.00
" 408. . . . .	8.00	10.00	12.00	15.00	20.00	30.00							
" 409 and 410. Brass . . . . .		10.00	12.00	15.00	20.00	30.00	50.00						
" 409 and 410. Iron . . . . .						30.00	50.00	65.00	80.00	100.00	115.00	125.00	180.00

In ordering, state pressure to be carried. 2 $\frac{1}{2}$ -inch and larger made screwed or flanged. If flanged Valves are wanted, state size of flange.



CROSBY GAUGES.

BOURDON PRESSURE OR VACUUM GAUGE.



Fig. 411.

IMPROVED PRESSURE GAUGE.



Fig. 412.

BOURDON PRESSURE OR VACUUM GAUGES.  
INCLUDING COCK.

Size.	Iron Case, Brass Ring.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
16 in. dial. . . . .	\$75.00	77.00	125.00	132.50	. . .	. . .
12 " . . . . .	50.00	51.50	75.00	79.00	80.00	84.00
10 " . . . . .	32.00	33.00	40.00	43.00	44.00	47.00
8 <sup>1</sup> / <sub>2</sub> " . . . . .	22.00	22.75	30.00	32.50	33.50	36.00
6 <sup>3</sup> / <sub>4</sub> " . . . . .	16.00	16.60	20.00	22.00	23.00	25.00
6 " . . . . .	13.00	13.50	16.00	17.50	18.50	20.00
5 <sup>1</sup> / <sub>2</sub> " . . . . .	10.00	10.25	12.00	13.25	13.75	15.00
5 " . . . . .	8.00	8.20	11.00	12.00	12.50	13.50
4 <sup>1</sup> / <sub>2</sub> " . . . . .	8.00	8.20	10.00	11.00	11.50	12.50
3 <sup>1</sup> / <sub>2</sub> " . . . . .	7.00	7.18	9.00	9.75	10.25	11.00
3 or 2 " . . . . .	6.00	6.15	8.00	8.60	9.25	9.75

IMPROVED PRESSURE GAUGES.  
INCLUDING COCK.

Size.	Iron Case, Japanned.	Iron Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
16 in. dial . . . . .	\$85.00	87.00	140.00	147.50	. . .	. . .
12 " . . . . .	55.00	56.50	80.00	84.00	85.00	89.00
10 " . . . . .	37.00	38.00	45.00	48.00	49.00	52.00
8 <sup>1</sup> / <sub>2</sub> " . . . . .	25.00	25.75	34.00	36.50	37.50	40.00
6 <sup>3</sup> / <sub>4</sub> " . . . . .	18.00	18.60	22.00	24.00	25.00	27.00
6 " . . . . .	15.00	15.50	18.00	19.50	20.75	22.25
5 <sup>1</sup> / <sub>2</sub> " . . . . .	12.00	12.25	14.00	15.25	16.25	17.50
5 " . . . . .	11.00	11.20	13.00	14.00	15.00	16.00
4 <sup>1</sup> / <sub>2</sub> " . . . . .	10.00	10.20	12.00	13.00	13.75	14.75

# ASHTON LOCK-UP POP SAFETY VALVES.

No. 3 VALVE FOR  
STATIONARY BOILERS.

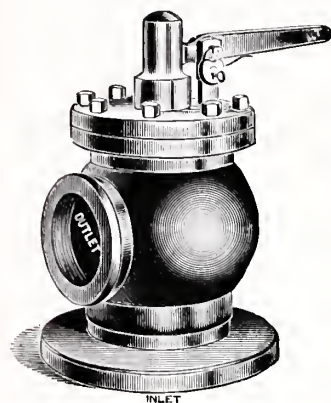


Fig. 413.

No. 16 IRON MARINE  
VALVE.

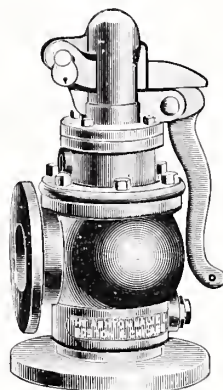


Fig. 414.

No. 22 IRON WATER  
RELIEF VALVE.

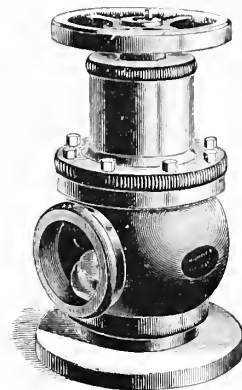


Fig. 415.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
No. 3. Iron Valve, Pipe Outlet . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	40.00	55.00	64.00	70.00	80.00	85.00	125.00
5. . . . .	. . . . .	. . . . .	12.00	18.00	30.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
6. Comp. Valve without lock-up . . . . .	4.50	5.50	8.50	10.00	23.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
8. Comp. Valve with lock-up . . . . .	6.00	8.00	10.00	12.00	25.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
HORSE POWER OF BOILERS . . . . .	8	10	15	25	35	50	75	100	120	140	170	200
Marine Valves, { No. 15. Comp. Valve . . . . .	7.20	9.60	12.00	14.40	30.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
{ 16. Iron Valve . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	48.00	66.00	75.00	84.00	95.00	102.00	150.00
{ For Boilers having following square feet grate surface . . . . .	1.32	2.35	3.68	5.30	9.42	14.72	21.20	28.86	37.69	47.70	58.90	84.82
No. 24. Water Relief Valves Comp. . . . .	7.00	9.00	12.50	16.50	23.00	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
No. 22. Water Relief Valves Iron . . . . .	. . . . .	. . . . .	. . . . .	30.00	40.00	60.00	75.00	. . . . .	85.00	. . . . .	125.00	150.00
Diameter Inlet Flange . Inches. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	8	9	10	10	12	12	14

Always order by number of valve; give pressure to set valve, and state whether flanged or screwed end. Nickel Seated Valves, prices same as above.

## ASHTON VACUUM, HYDRAULIC, COMPOUND, COMBINATION, PYROMETER, AMMONIA AND STANDARD TEST GAUGES.

### THE ASHTON PATENT OR DOUBLE SPRING BOURDON PRESSURE GAUGES.

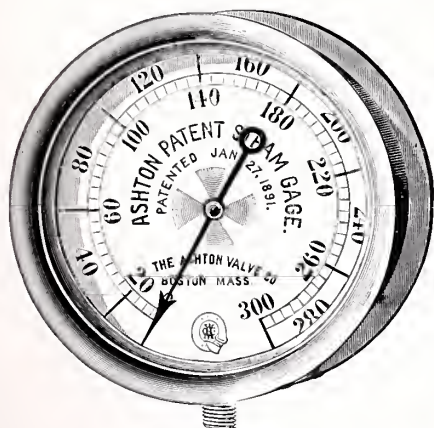


Fig. 416.

SIZE.	Iron Case, Japanned	In Case, N. P. Ring.	Brass Case.	N. P. Case.	Brass Deep Case, O. G. or Oct. Ring.	N. P. Deep Case, O. G. or Oct. Ring.
12 inch dial . . . . .	\$55.00	56.50	80.00	84.00	85.00	89.00
10 " " . . . . .	37.00	38.00	45.00	48.00	49.00	52.00
8 " " . . . . .	25.00	25.75	34.00	36.50	37.50	40.00
6 " " . . . . .	18.00	18.60	22.00	24.00	25.00	27.00
5 " " . . . . .	15.00	15.50	18.00	19.50	. . . . .	. . . . .
4 " " . . . . .	12.00	12.25	14.00	15.25	. . . . .	. . . . .
3 " " . . . . .	11.00	11.20	13.00	14.00	. . . . .	. . . . .
2 " " . . . . .	10.00	10.20	12.00	13.00	. . . . .	. . . . .

SIPHON COCKS.

SECTIONAL VIEW.

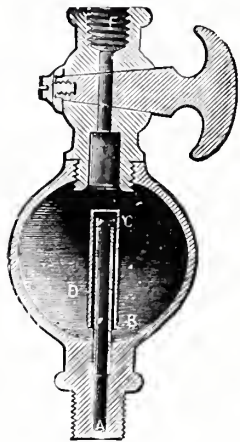


Fig. 417.

SIPHON WITH COCK.



Fig. 418.

STRAIGHT SIPHON.



Fig. 419.

ELBOW SIPHON WITH COCK.

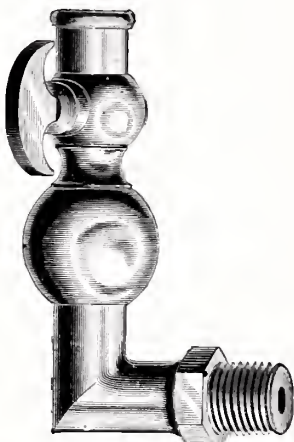


Fig. 420.

Fig. 418.	Straight Siphon with Cock . . . . .	\$1.50
" 419.	" " without Cock . . . . .	1.00
" 420.	Elbow Siphon with Cock . . . . .	1.50
" 420.	" " without Cock . . . . .	1.25

Nickel Plating extra.

COIL PIPE SIPHON AND STEAM SWING JOINT.

COIL PIPE SIPHON.



Fig. 421.

STEAM SWING JOINT—ROUGH.



Fig. 422.

Fig. 421.	Coil Pipe Siphon . . . . .	Each,	80.25	Brass,	1.00	Nickel Plated,	1.50
SIZE . . . . .	INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$
Fig. 422.	Steam Swing Joint, Rough . . . . .	81.25	1.75	2.40	3.50	4.50	6.25
							9.00

# LOWDEN SEPARATORS.

GREASE, OIL AND GRIT EXTRACTOR.

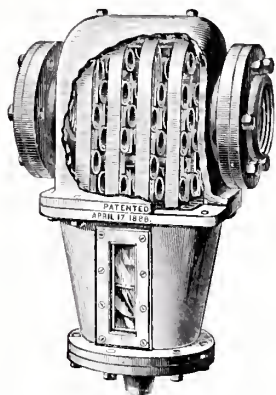


Fig. 423.

AUTOMATIC WATER SEPARATOR.

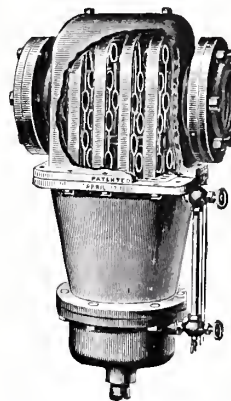


Fig. 424.

Separating and Automatically Discharging Grease,  
Oil and Grit from Exhaust Steam.

Separating and Automatically Discharging  
Entrained Water from Live Steam.

LOWDEN SEPARATORS — Figs. 423 and 424.

Size of Extractor or Exhaust Pipe.	Total Length of Body.	Distance from top of Extractor to centre of Exhaust Pipe.	Distance from bottom of Extractor to centre of Exhaust Pipe.	Diameter of Flanges.	Distance from face to face of Flanges.	Diameter of Body of Extractor.	Price Fig. 423.	Price Fig. 424.
2 in.	13 $\frac{1}{4}$ in.	3 $\frac{1}{4}$ in.	10 in.	6 in.	8 $\frac{3}{4}$ in.	6 $\frac{3}{4}$ in.	\$35.00	50.00
3 "	15 $\frac{1}{2}$ "	4 $\frac{1}{4}$ "	11 $\frac{1}{4}$ "	7 "	10 $\frac{3}{4}$ "	8 $\frac{1}{2}$ "	50.00	65.00
4 "	25 "	6 $\frac{1}{4}$ "	18 $\frac{3}{4}$ "	9 "	13 "	11 $\frac{1}{2}$ "	70.00	85.00
5 "	25 $\frac{1}{2}$ "	6 $\frac{3}{4}$ "	18 $\frac{3}{4}$ "	10 $\frac{1}{2}$ "	14 $\frac{1}{4}$ "	12 $\frac{1}{4}$ "	85.00	100.00
6 "	28 $\frac{1}{4}$ "	8 $\frac{1}{4}$ "	20 "	14 "	16 $\frac{1}{2}$ "	14 $\frac{3}{4}$ "	110.00	125.00
7 "	30 $\frac{1}{4}$ "	9 $\frac{1}{4}$ "	21 "	15 "	16 $\frac{3}{4}$ "	16 $\frac{1}{4}$ "	135.00	150.00
8 "	32 "	10 $\frac{1}{2}$ "	21 $\frac{1}{2}$ "	16 "	17 $\frac{1}{4}$ "	18 $\frac{1}{2}$ "	150.00	175.00
9 "	34 "	11 $\frac{1}{2}$ "	22 $\frac{1}{2}$ "	18 "	17 $\frac{1}{2}$ "	19 $\frac{3}{4}$ "	175.00	205.00
10 "	36 "	12 $\frac{1}{2}$ "	23 $\frac{1}{2}$ "	20 "	18 $\frac{3}{4}$ "	21 $\frac{1}{4}$ "	200.00	225.00
12 "	42 "	15 "	27 "	23 "	21 $\frac{1}{4}$ "	26 "	250.00	275.00
14 "	" "	" "	" "	" "	" "	" "	300.00	325.00
16 "	" "	" "	" "	" "	" "	" "	350.00	375.00

Special arrangements as to price, etc., for larger sizes than herein mentioned, will be given upon application.



STRATTON SEPARATORS.

SCREWED ENDS.



Fig. 425.

FLANGED ENDS.

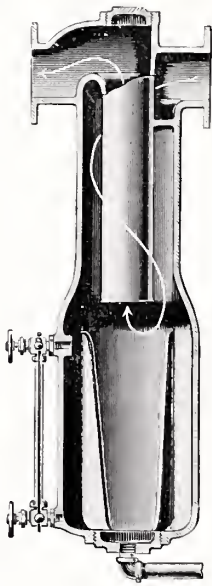


Fig. 426.

STRATTON SEPARATORS—Figs. 425 and 426.

Diameter of Steam Pipe.	Diameter of Body.	Length over all.	Size of Drip.	Distance across Nozzles, (Screwed Ends.)	Distance between Flanges, (Flanged Ends.)	Approximate Shipping Weight.	Prices F. O. B. New York.	
							Screwed Ends.	Flanged Ends.
1 in.	5½ in.	17 in.	¾ in.	6¼ in.	. . .	35 lb.	\$12 00	. . .
1½ "	6½ "	21 "	¾ "	7¼ "	. . .	50 "	20 00	. . .
2 "	7 "	25½ "	1 "	8½ "	9½ in.	75 "	30 00	35 00
2½ "	9 "	33 "	1 "	11 "	12 "	130 "	40 00	46 00
3 "	11 "	41 "	1½ "	12¾ "	13¾ "	200 "	50 00	58 00
3½ "	12½ "	46½ "	1½ "	14½ "	15½ "	275 "	62 00	72 00
4 "	14½ "	52½ "	1½ "	15½ "	16½ "	350 "	75 00	87 00
4½ "	15½ "	56 "	1½ "	17½ "	18½ "	460 "	90 00	104 00
5 "	17 "	64 "	1½ "	. . .	20 "	600 "	. . .	126 00
6 "	20 "	76 "	1½ "	. . .	22½ "	900 "	. . .	160 00
7 "	21½ "	79 "	1½ "	. . .	28 "	1350 "	. . .	200 00
* 8 "	23 "	87 "	1½ "	. . .	31 "	1200 "	. . .	240 00
9 "	26½ "	104 "	1½ "	. . .	36½ "	1600 "	. . .	280 00
10 "	29 "	110 "	1½ "	. . .	38½ "	1800 "	. . .	330 00
12 "	31 "	130 "	2 "	. . .	45 "	2500 "	. . .	450 00
14 "	39 "	150 "	2 "	. . .	50½ "	3500 "	. . .	600 00
16 "	43 "	153 "	2 "	. . .	57½ "	5300 "	. . .	800 00

\* Separators eight inches and above are made with wrought steel shells.  
Separators with top or bottom outlet. Prices on application.

WAINWRIGHT IMPROVED FEED WATER HEATERS.

STEAM TUBE.

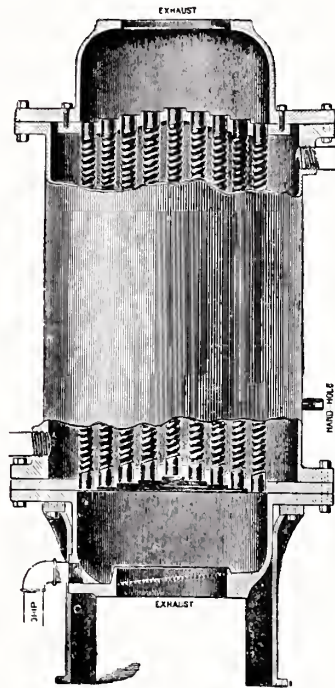


Fig. 427.

WATER TUBE.

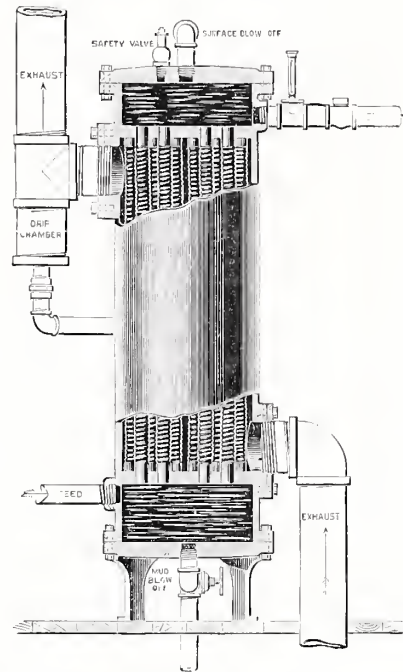


Fig. 428.

Horse Power . . . . .	15	20	25	30	40	50	60	75	100	125	150
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Fig. 427. Steam Tube . .	\$65.00	75.00	85.00	95.00	105.00	125.00	140.00	165.00	230.00	270.00	305.00
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Horse Power . . . . .	200	250	300	350	400	500	600	700	800	900	1000
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Fig. 427. Steam Tube . .	390.00	460.00	560.00	625.00	690.00	790.00	950.00	1100.00	1275.00	1400.00	1500.00
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Horse Power . . . . .	20	25	30	40	50	60	80	100	150
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Fig. 428. Water Tube . .	\$35.00	45.00	55.00	65.00	80.00	100.00	120.00	150.00	250.00
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Horse Power . . . . .	200	300	400	500	600	700	800	900	1000
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Fig. 428. Water Tube . .	\$300.00	400.00	500.00	600.00	750.00	900.00	1050.00	1200.00	1400.00
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THE JACOBS PATENT WATER TUBE  
FEED WATER HEATERS.

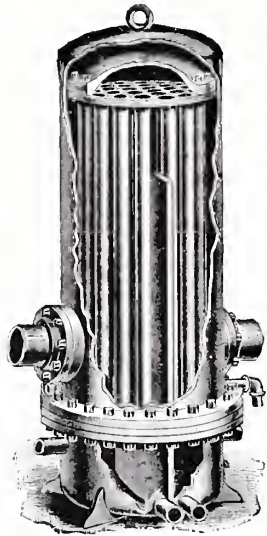


Fig. 429.

Horse Power.	Diameter Outside of Flanges.	Diameter of Shell.	Total Height.	Number of Tubes.	Diameter of Tubes.	Diameter of Exhaust.	Diameter of Feed.	Shipping Weight.	Price.
30	15 in.	12 in.	33 $\frac{1}{2}$ in.	14	1 $\frac{1}{4}$ in.	4 in.	1 $\frac{1}{4}$ in.	400 lbs.	\$80.00
40	15 "	12 "	42 $\frac{1}{2}$ "	14	1 $\frac{1}{4}$ "	6 "	1 $\frac{1}{4}$ "	450 "	90.00
50	15 "	12 "	51 $\frac{1}{2}$ "	14	1 $\frac{1}{4}$ "	6 "	1 $\frac{1}{4}$ "	500 "	105.00
60	15 "	12 "	59 $\frac{1}{2}$ "	14	1 $\frac{1}{4}$ "	6 "	1 $\frac{1}{4}$ "	540 "	125.00
80	15 "	12 "	68 $\frac{1}{2}$ "	14	1 $\frac{1}{4}$ "	6 "	1 $\frac{1}{4}$ "	680 "	144.00
100	20 "	16 "	55 "	30	1 $\frac{1}{4}$ "	8 "	1 $\frac{1}{4}$ "	800 "	190.00
125	20 "	16 "	64 "	30	1 $\frac{1}{4}$ "	8 "	1 $\frac{1}{2}$ "	925 "	240.00
150	20 "	16 "	73 "	30	1 $\frac{1}{4}$ "	8 "	1 $\frac{1}{2}$ "	1050 "	300.00
200	24 "	21 "	63 "	52	1 $\frac{1}{4}$ "	8 "	1 $\frac{1}{2}$ "	1360 "	380.00
250	24 "	21 "	74 "	52	1 $\frac{1}{4}$ "	10 "	2 "	1500 "	440.00
300	24 "	21 "	85 "	52	1 $\frac{1}{4}$ "	10 "	2 "	1650 "	525.00
400	28 "	24 "	77 "	80	1 $\frac{1}{4}$ "	12 "	3 "	2600 "	650.00
500	28 "	24 "	89 "	80	1 $\frac{1}{4}$ "	14 "	3 "	2850 "	750.00
600	28 "	24 "	102 $\frac{1}{2}$ "	80	1 $\frac{1}{4}$ "	14 "	3 "	2725 "	880.00
700	34 $\frac{1}{2}$ "	29 "	84 $\frac{1}{2}$ "	114	1 $\frac{1}{4}$ "	16 "	3 "	3525 "	1020.00
800	34 $\frac{1}{2}$ "	29 "	96 $\frac{1}{2}$ "	114	1 $\frac{1}{4}$ "	16 "	3 "	3675 "	1140.00
900	34 $\frac{1}{2}$ "	29 "	108 $\frac{1}{2}$ "	114	1 $\frac{1}{4}$ "	16 "	3 "	3800 "	1270.00
1000	38 $\frac{1}{2}$ "	32 "	116 $\frac{1}{2}$ "	126	1 $\frac{1}{4}$ "	18 "	4 "	4580 "	1400.00
1100	38 $\frac{1}{2}$ "	32 "	126 $\frac{1}{2}$ "	126	1 $\frac{1}{4}$ "	18 "	4 "	4750 "	1520.00
1200	38 $\frac{1}{2}$ "	32 "	136 $\frac{1}{2}$ "	126	1 $\frac{1}{4}$ "	18 "	4 "	5500 "	1660.00

In writing for prices, state Horse Power of Engine and Boiler. Estimates furnished for larger sizes, upon application.

In Connecting the Heater with the Boiler, always place a Safety Valve on the Feed Pipe.

THE NATIONAL FEED WATER HEATERS.

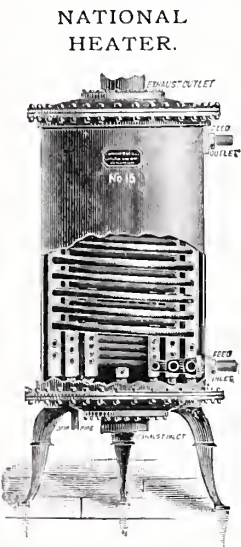


Fig. 430.

No.	Horse Power.	Diameter of Feed Pipe, Inches.	Diameter of Exhaust Pipe, Inches.	Dimensions of Heater.		Price.
				Height, Inches.	Diameter, Inches.	
1	8	$\frac{1}{2}$	2	11	11	\$20.00
2	12	$\frac{1}{2}$	$2\frac{1}{2}$	17	11	25.00
3	20	$\frac{3}{4}$	$2\frac{1}{2}$	16	16	35.00
4	25	1	3	19	19	45.00
5	30	1	4	23	20	55.00
6	40	1	4	25	20	65.00
7	50	1	4	31	20	80.00
8	60	1	4	36	20	100.00
9	80	1	4	41	20	120.00
10	100	$1\text{ or }1\frac{1}{4}$	5	52	20	150.00
$10\frac{1}{2}$	125	$1\frac{1}{4}\text{ or }1\frac{1}{2}$	6	52	22	200.00
11	150	$1\frac{1}{2}$	8	52	29	250.00
12	200	$1\frac{1}{2}\text{ or }2$	8	58	29	300.00
13	300	2	10	52	42	400.00
14	400	$2\text{ or }2\frac{1}{2}$	10	64	42	500.00
15	500	$2\text{ or }2\frac{1}{2}$	10	76	42	600.00
16	800	3	12	88	42	1000.00
17	1000	3	12	88	56	1500.00
18	2000	$4\frac{1}{2}$	16	100	70	2500.00

The diameters given are across the heads, and the height is flange to flange.  
We furnish these Heaters with legs only when same are specified in ordering.

STEAM JACKET KETTLES.

STEAM JACKET KETTLE.

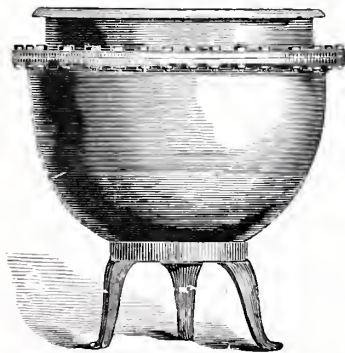


Fig. 431.

SECTIONAL VIEW.

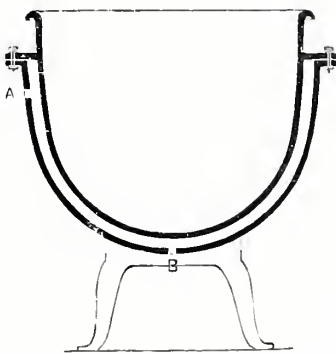


Fig. 432.

CAPACITY IN GALS. . . . .	1	6	10	15	25	30	45	50	60	80	125
Each . . . . .	\$6.00	20.00	25.00	30.00	50.00	60.00	90.00	100.00	110.00	160.00	175.00

Kettles 15 Gallons and under are furnished without stands.



STEAM TRAPS.

FIDELITY STEAM TRAP.

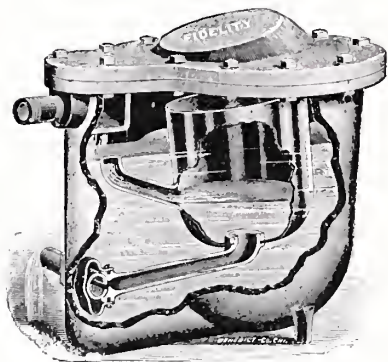


Fig. 433.

CAPACITY BASED ON A PRESSURE OF 80 LBS.

No.	Size.	Lin'l Feet 1 In. Pipe.	Square Feet, Heat. Sur.	Price.
00	10½ x 16	1000	360	\$22.00
0	10½ x 16	2000	700	26.00
1	10½ x 16	4000	1400	30.00
2	12½ x 17	7000	2500	40.00
3	13 x 18	10000	3500	55.00
4	14 x 19	15000	5700	75.00

Sent on thirty days' trial and warranted one year.

ALBANY STEAM TRAP.

Size.	Capacity of 1 in. Pipe.	Price.	Price of Drip Tanks.
No. A 1	15000 to 20000	\$200.00	10.00
No. 1	8000 to 10000	150.00	10.00
No. 2	4000 to 5000	100.00	10.00
No. 3	1000 to 1500	75.00	10.00

The above price includes the two Check Valves, Automatic Air Valves and Strainer.

SPECIAL BUCKET TRAP.

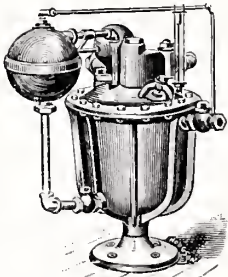


Fig. 434.

PRATT'S PATENT RETURN STEAM TRAP.

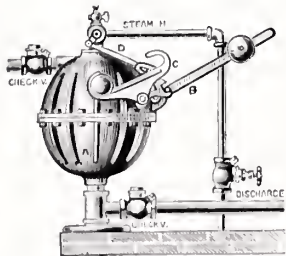


Fig. 435.

Trap No.	Will Drain 1 Inch Pipe.	Water Delivery per Hour.	Price.
1	4000 to 5000 Feet.	200 Gallons.	\$100.00
2	8000 to 10000 "	350 "	250.00
3	15000 to 20000 "	550 "	200.00
4	30000 to 40000 "	800 "	300.00

Receivers extra — No. 1, \$12.00; No. 2, 15.00; No. 3, 18.00.

STEAM TRAPS—CONTINUED.

NASON TRAP.



Fig. 436.

NUMBER OF STEAM TRAP . . . . .	1	2	3	4	5
Size of Pipe Connections . . . . . Inches.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Diameter outside of Flanges . . . . . "	$10\frac{3}{4}$	$14\frac{1}{4}$	$15\frac{3}{4}$	19	$24\frac{1}{4}$
Diameter of Cylinder . . . . . "	8	$10\frac{1}{2}$	12	14	18
Height to top of Valve . . . . . "	11	14	$16\frac{1}{4}$	$18\frac{1}{2}$	$23\frac{1}{2}$
Height to top of Cover . . . . . "	8	10	12	14	$15\frac{1}{2}$
Maximum discharge lbs. per minute. . . . . "	2	5	8	12	20
Greatest number of square feet of surface to which it should be applied . . . . .	350	900	1400	2000	3500
Greatest lineal feet of 1-inch pipe surface to which it should be applied . . . . .	1050	2700	4200	6000	10500
Price . . . . .	\$16.00	20.00	27.50	42.50	70.00

CURTIS BALANCED STEAM TRAP.

SIZE AND CONDENSING CAPACITY IN FEET OF ONE-INCH PIPE.

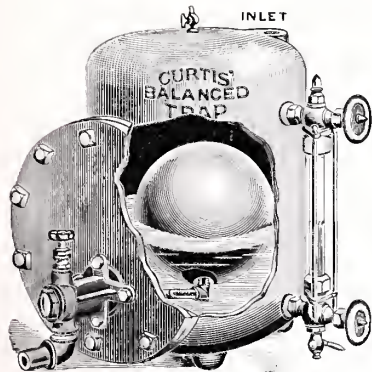


Fig. 437.

No.	Size.	Lineal Feet 1-in. Pipe.	Valve, Inches.	Price.
00	$8\frac{1}{2}$ x 11	1000	$\frac{1}{4}$	\$20.00
0	9 x 12	2500	$\frac{1}{2}$	25.00
1	10 x 13	4000	$\frac{3}{4}$	30.00
2	$10\frac{3}{4}$ x $14\frac{1}{4}$	7000	1	40.00
$2\frac{1}{2}$	$11\frac{1}{2}$ x $15\frac{1}{2}$	10000	$1\frac{1}{4}$	55.00
3	$12\frac{1}{4}$ x $16\frac{3}{4}$	15000	$1\frac{1}{2}$	75.00
4	13 x 18	26000	2	100.00
5	20 x 20	45000	3	125.00

Glass Water Gauge, \$4.00 extra.

# FOSTER REGULATORS, GOVERNORS AND REDUCING VALVES.

PUMP GOVERNOR.

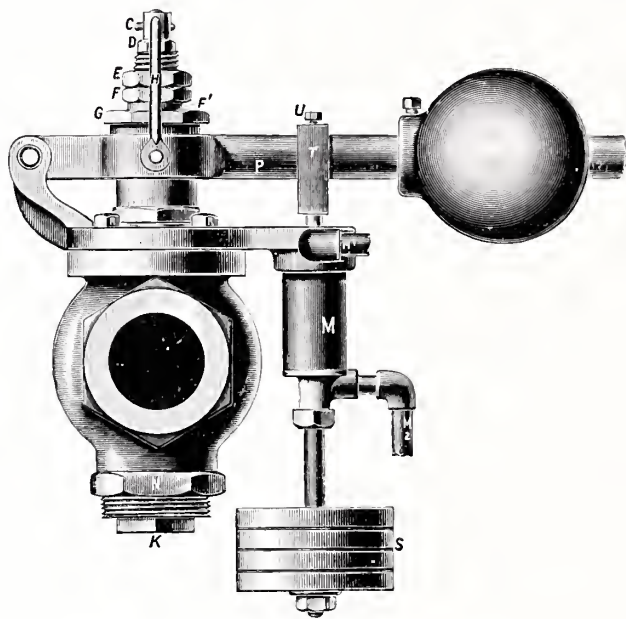


Fig. 438.

SIZE . INCHES.	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	4	5	6	8	10	12
Screwed Ends .	\$30.00	35.00	40.00	45.00	55.00	68.00	80.00	105.00	145.00	190.00			
Flanged Ends .					57.75	71.40	84.00	110.25	152.25	199.50	275.00	400.00	525.00

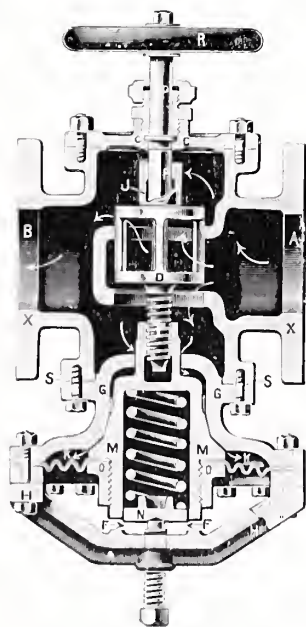


Fig. 439.

## PRESSURE REGULATOR AND REDUCING VALVE.

SIZE . INCHES.	2	2 $\frac{1}{2}$	3	4	5	6	8	10	12
Flanged Ends, Class H.*	50.00	63.00	78.00	110.00	145.00	190.00	295.00	420.00	575.00
Screwed Ends, Class F.*	47.00	60.00	75.00	105.00	140.00	180.00			

Above Valves have cast iron bodies with trimmings of best steam metal.

\* The price of the 3 $\frac{1}{2}$ , 4 $\frac{1}{2}$ , 5 $\frac{1}{2}$ , 7 and 9-inch Valves is the same as that of the 4, 5, 6, 8 and 10-inch respectively.

# DAMPER REGULATORS AND REDUCING VALVES.

CLARK'S DAMPER REGULATOR.

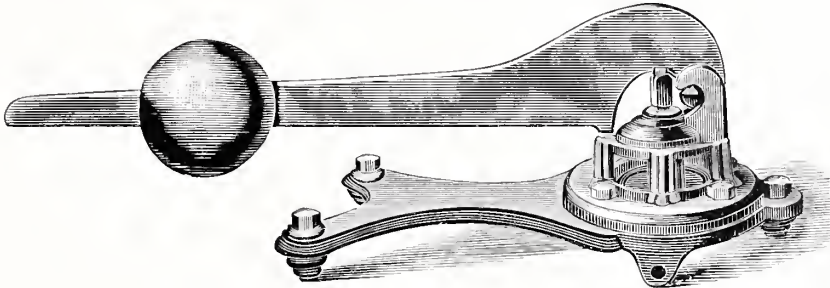


Fig. 440.

CLARK'S DAMPER REGULATORS — Fig. 440.

NUMBER . . . . .	1	2	3
Boilers, Horse Power . . . . .	5	20	30 and over.
Each . . . . .	\$10.00	15.00	25.00
Diaphragms . . . . .	.40	.60	1.25

LOW PRESSURE DAMPER REGULATOR.

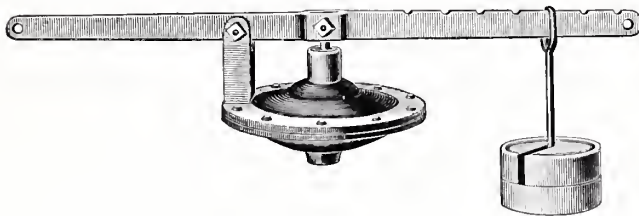


Fig. 441.

LOW PRESSURE DAMPER REGULATORS — Fig. 441.

Low Pressure Damper Regulator . . . . .	Each	\$4.50
Rubber Diaphragms . . . . .	"	.75



DAMPER REGULATORS AND REDUCING VALVES—CONTINUED.

WATSON'S STEAM PRESSURE REGULATOR.

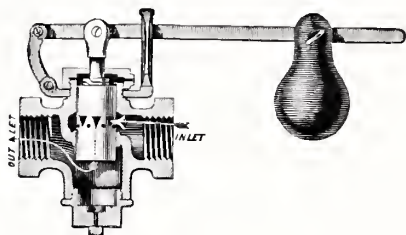


Fig. 442.

WATSON'S STEAM PRESSURE REGULATORS—Fig. 442.

SIZE . . . . . INCHES.	1	1¼	1½	2	2½	3	4	5	6	7	8
Brass, Screwed Ends . . . . .	17.00	22.00	28.00	38.00	55.00	70.00	90.00				
Iron Body, Brass Lined, Screwed Ends . . . . .				38.00	55.00						
*Iron Body, Brass Lined, Flanged . . . . .						70.00	90.00	110.00	150.00	180.00	230.00

\*Tapped also for screwing, and can be used either way.

CURTIS' PRESSURE REGULATOR.

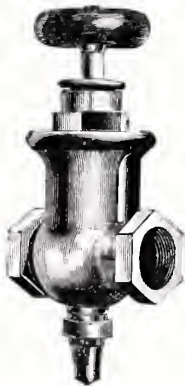


Fig. 443.

LOCKE'S REDUCING VALVE.



Fig. 444.

MASON'S REDUCING VALVE.

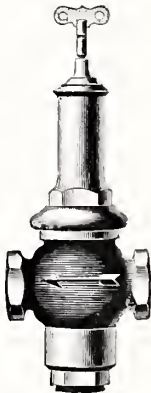


Fig. 445.

Figs. 443, 444 and 445.

SIZE . . . . . INCHES.	½	¾	1	1¼	1½	2	2½	3	4	5	6	7	8
Fig. 443. . . . .			22.00	28.00	35.00	44.00	57.00	72.00	100.00	135.00	180.00	210.00	250.00
" 444, Brass. . . . .			15.00	18.00	22.00	28.00	35.00	50.00	65.00	85.00			
" 444, Iron . . . . .							44.00	57.00	72.00	100.00			
" 445. . . . .			15.00	18.00	22.00	28.00	35.00	44.00	57.00	72.00	100.00	135.00	180.00

## METROPOLITAN AUTOMATIC INJECTOR.

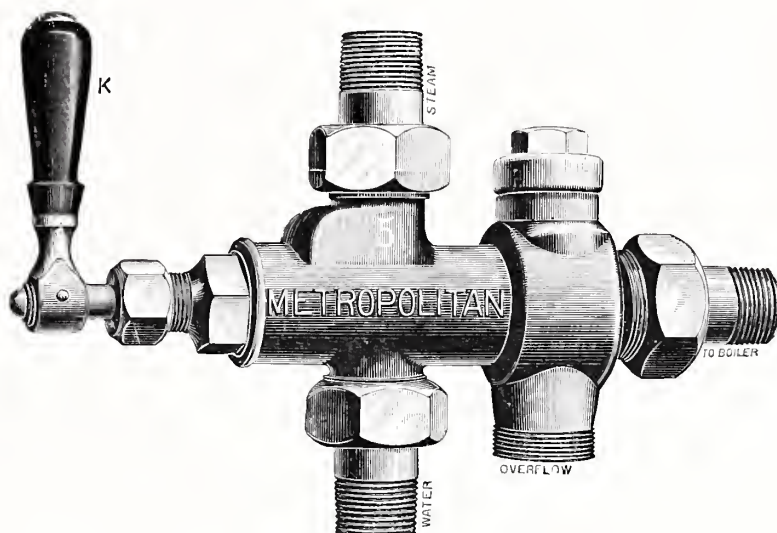


Fig. 446.

Size.	Price.	Size of Pipe Connections.	Gallons per Hour, 65 lbs. Pressure.	Horse Power.
2	\$15.50	$\frac{3}{8}$ in.	40	1 to 4
3	16.00	$\frac{1}{2}$ "	60	4 to 8
$3\frac{1}{2}$	18.00	$\frac{3}{4}$ "	90	8 to 12
4	20.00	$1\frac{1}{8}$ "	120	12 to 16
5	25.00	$1\frac{1}{4}$ "	220	16 to 28
6	30.00	$1\frac{3}{4}$ "	300	28 to 40
7	40.00	1 "	420	40 to 57
8	45.00	1 "	540	57 to 72
9	55.00	$1\frac{1}{4}$ "	720	72 to 93
10	60.00	$1\frac{1}{2}$ "	900	93 to 120
11	75.00	$1\frac{1}{2}$ "	1260	120 to 168
12	90.00	$1\frac{1}{2}$ "	1740	168 to 232
13	110.00	2 "	2240	232 to 298
14	125.00	2 "	2820	298 to 382
15	150.00	$2\frac{1}{2}$ "	3480	382 to 466

## THE CRESCENT EJECTOR OR STEAM JET PUMP.

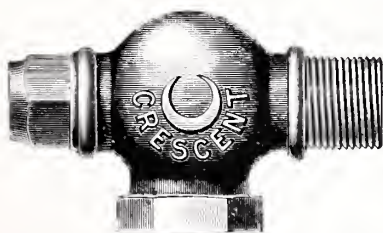


Fig. 447.

Size.	Steam Connection.	Delivery and Suction.	Capacity, 65 lbs. per Hour.	Price.	Strainers.
Brass, No. 1	$\frac{1}{2}$ in.	$\frac{1}{8}$ in.	250	\$8.00	.50
" " 2	$\frac{3}{8}$ "	$\frac{1}{4}$ "	500	10.00	.75
" " 3	$\frac{1}{2}$ "	1 "	960	15.00	1.00
" " 4	$\frac{3}{4}$ "	$1\frac{1}{4}$ "	1300	20.00	1.25
" " 5	1 "	$1\frac{1}{2}$ "	2000	25.00	1.50
" " 6	$1\frac{1}{4}$ "	2 "	3500	35.00	1.75
Iron, " " 7	$1\frac{1}{4}$ "	$2\frac{1}{2}$ "	5000	40.00	2.00
" " 8	$1\frac{1}{2}$ "	3 "	8000	50.00	2.50
" " 9	2 "	4 "	10000	65.00	3.00

# METROPOLITAN DOUBLE TUBE INJECTOR.

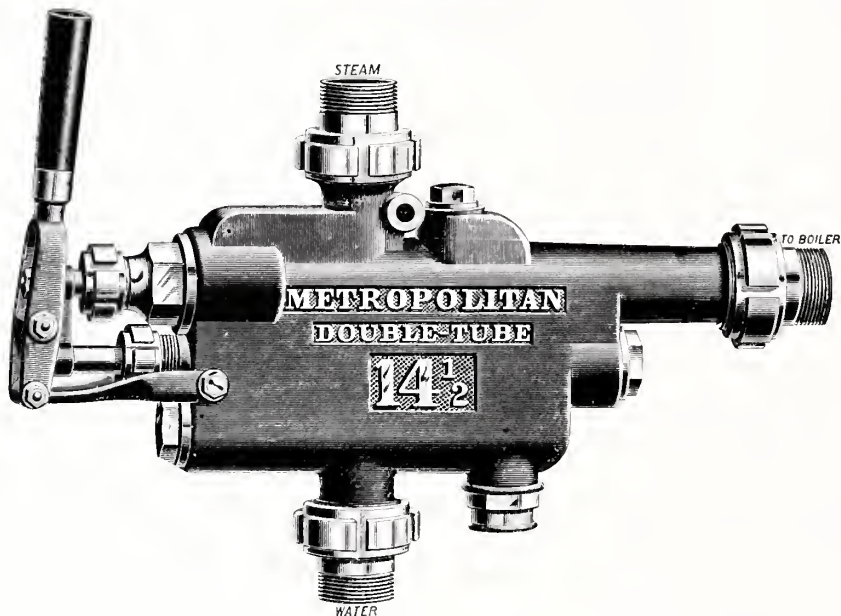


Fig. 448.

Size.	Price.	Size of Pipe Con- nections.	Gallons per Hour.	Horse Power.	Drip Funnel.
2½	\$18.00	½	100	6 to 12	\$1.00
4½	20.00	½	150	12 to 20	1 00
5½	25.00	¾	225	20 to 35	1 25
6½	30.00	¾	350	35 to 50	1 25
7½	40.00	1	500	50 to 70	1 50
8½	45.00	1	600	70 to 90	1.50
9½	55.00	1¼	800	90 to 115	2.00
10½	60.00	1¼	1000	115 to 140	2.00
11½	75.00	1½	1300	140 to 185	2.50
12½	90.00	1½	1750	185 to 250	2.50
13½	110.00	2	2230	250 to 300	3.00
14½	125.00	2	2820	300 to 375	3.00
15½	150.00	2½	3500	375 to 500	3.50

When ordering, state the Horse Power of Boiler or Boilers, range of steam pressure, the temperature of the feed water and the quantity of water used per hour.

THE HANCOCK INSPIRATOR.

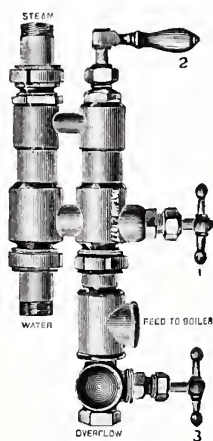


Fig. 445.

No. of Inspirator.	Size of Connections.		Gallons per hour, 60 lbs. Pressure.	Horse Power.	Price.	No. of Inspirator.	Size of Connections.		Gallons per hour, 60 lbs. Pressure.	Horse Power.	Price.
	Suction and Feed.	Steam.					Suction and Feed.	Steam.			
7 1/4	1/2	1/2	60	6 to 8	\$16.00	22 1/2	1 1/4	1	700	60 to 90	\$55.00
10	3/4	3/4	85	8 to 10	18. 00	25	1 1/2	1	900	75 to 100	60.00
12 1/2	1	1	120	10 to 15	20.00	30	1 3/4	1 1/4	1260	100 to 150	75.00
15	1 1/4	1 1/4	220	18 to 25	25.00	35	1 3/4	1 3/4	1740	140 to 210	90.00
17 1/2	1 1/2	1 1/2	300	25 to 35	30.00	40	2	1 3/4	2230	190 to 275	110.00
20	1 3/4	1 3/4	430	35 to 50	40.00	45	2	1 3/4	2820	240 to 350	125.00
			540	45 to 60	45.00	50	2 1/2	2	3480	290 to 430	150.00

WHEN ORDERING AN INSPIRATOR PLEASE ANSWER THE FOLLOWING QUESTIONS.

- 1. What is the horse power of boiler or boilers ; or what is the quantity of water required per hour?
- 2. What is the range of steam pressure?
- 3. What is the temperature of supply ?
- 4. What is the extreme lift or head, vertieally or horizontally, from supply to inspirator ?
- 5. Is water used for other purposes than feeding boilers ?
- 6. What is the number of boilers ?
- 7. What type of boiler is used ?
- 8. What are the dimensions of boilers ?

HANCOCK EJECTOR OR LIFTER.

No.	Suction and Feed. Inches.	Steam. Inches.	Gallons per hour.	Price.	No.	Suction and Feed. Inches.	Steam. Inches.	Gallons per hour.	Price.
10	1/2	1/2	120	\$7. 00	40	2	1	2230	\$35. 00
15	3/4	3/4	300	10. 00	45	2	1	2876	40. 00
20	1	1	540	15. 00	50	2 1/2	1 1/4	3480	45. 00
25	1 1/4	1 1/4	900	20. 00	55	2 1/2	1 3/4	3600	50. 00
30	1 1/2	1 1/2	1260	25. 00	60	3	1 3/4	4000	55. 00
35	1 3/4	1 3/4	1743	30. 00	65	3	1 1/2	4520	60. 00



WATER GAUGE COLUMNS.

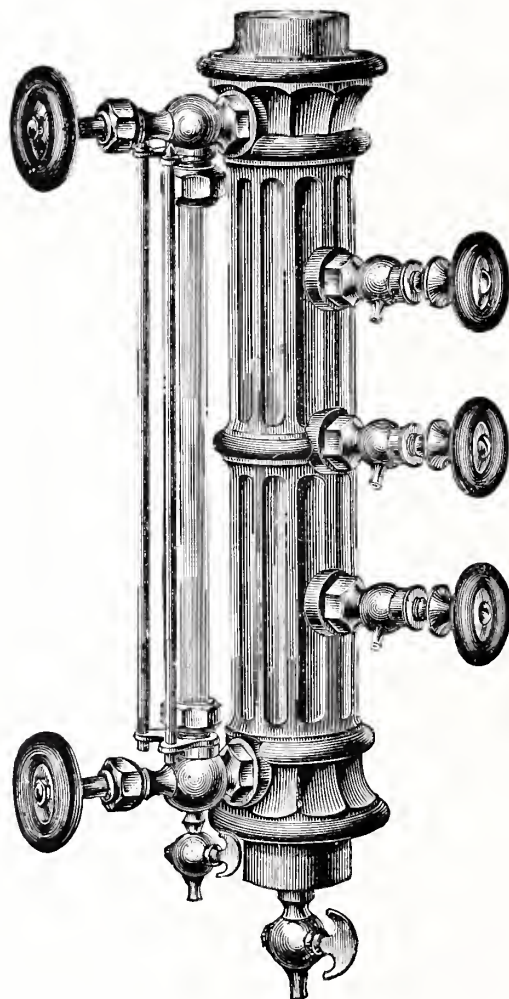


Fig. 450.

WITHOUT TRIMMINGS.

No. . . . .	1	2	3	4	5	6
Length. . . . . Inches.	12	15	18	22	20	28
Size Boiler Connections . . . .	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$
Size Water Gauge Connections.	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Cen. to Cen. Water Gauge Con.	10	12	15	18	14	22
Size Gauge Cock Holes. . . . .	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Price . . . . . Each.	\$1.25	1.50	2.50	3.00	3.00	5.50

WITH TRIMMINGS AS FOLLOWS:

Water Gauge, Steam Gauge and Siphon, and Stuffing Box Gauge Cocks.

No. . . . .	1	2	3	4	5	6
No. of Water Gauge . . . . In.	6	7	7	8	8	8
Size of Gauge Cock . . . .	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$
Diameter of Steam Gauge . . .	5	5	5	6	6	6
With Iron Case Steam Gauge .	\$22.00	26.00	29.00	50.00	50.00	57.00
With Brass Case Steam Gauge .	33.00	36.00	40.00	56.00	56.00	62.00

# RELIANCE SAFETY WATER COLUMNS.

SAFETY COLUMN WITH TRIMMINGS.

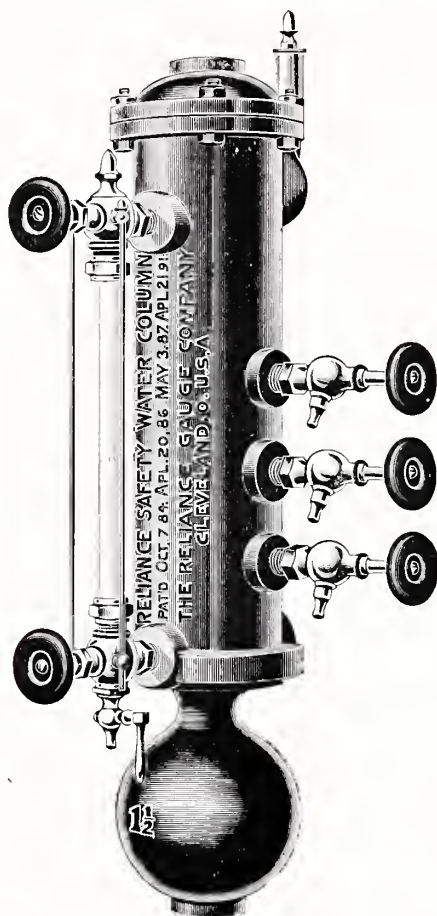


Fig. 451.

No.	Kind of Alarm.	Dimensions over all, in inches.	Diameter of Boiler and Steam Pressure in Lbs.		Size of Boiler Connections.	Variation between Alarms.	Length Glass.	Distance betw'n Gauge Cocks.	Size Trimmings.	JAPANNED.		FINISHED BRASS.	
			UP TO	UP TO						Without G'ge C'ks or W. Gauge.	With G'ge Cocks and Water Gauge.	Without G'ge C'ks or W. Gauge.	With G'ge Cocks and Water Gauge.
1	H. & L.	3 1/4 x 23	54	80	1	6	12	3	1/4	\$28.00	35.00	70.00	85.00
1 1/2	H. & L.	4 1/4 x 28	54	150	1 1/4	6	12	3	1/4	28.00	35.00	...	...
2	Low.	3 1/4 x 23	60	100	1	8	12	3	1/4	25.00	32.00	65.00	80.00
5	H. & L.	4 1/4 x 29 1/4	Any	Any	1 1/2	8	16	4	1/4	30.00	40.00	80.00	100.00
6	Low.	4 1/4 x 27	Diameter	Pressure	1 1/4	8	14	4	1/4	28.00	37.00	75.00	95.00

Columns made with any variation from 6 inches to 36 inches between the alarms, for Hazleton, Corliss, and similar boilers, and for special purposes.

NOTICE—When not otherwise ordered, we ship the columns trimmed, with gauge cocks and water gauge. When ordering, state whether right or left-hand columns are wanted. A column having gauge cocks on the left-hand side when looking at the glass which is on the front, is a left-hand column, and *vice versa*. The column shown above is a right-hand column.

THE HATCH SAFETY COLUMNS.  
FOR STEAM BOILERS.

HATCH SAFETY COLUMN.

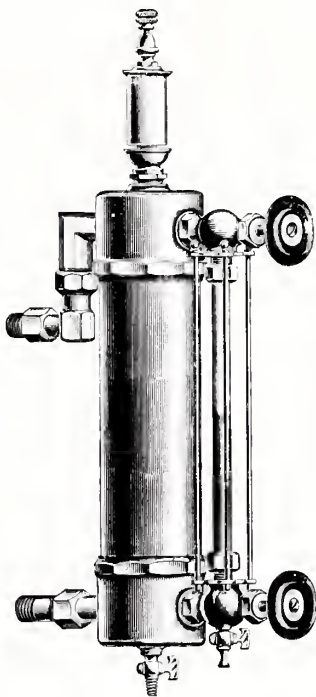
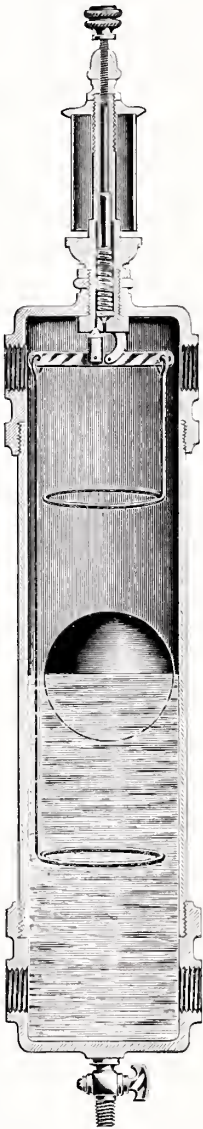


Fig. 452.

Write for Circulars and Prices.

HATCH SAFETY COLUMN.



Sectional View.  
Fig. 453.

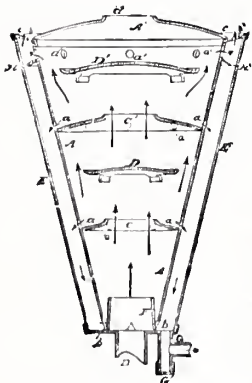


Fig. 454.

McDANIELS'  
EXHAUST HEAD.

Fig. 454.

SIZE . . . IN.	2	2½	3	3½	4	5	6	7	8	10	12
Screwed . . .	25.00	27.50	30.00	35.00	40.00						
Flanged . . .						50.00	60.00		85.00	120.00	150.00

# WATER GAUGES COMPLETE.

No. 1. EXPAN- No. 2. ROUGH BODY — No. 6. FINISHED BODY No. 10. FINISHED BODY  
SION TANK IRON WHEEL. — WOOD WHEEL. — WOOD WHEEL.  
GAUGE.



Fig. 455.

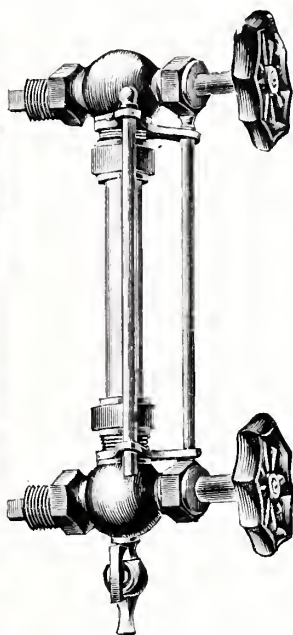


Fig. 456.

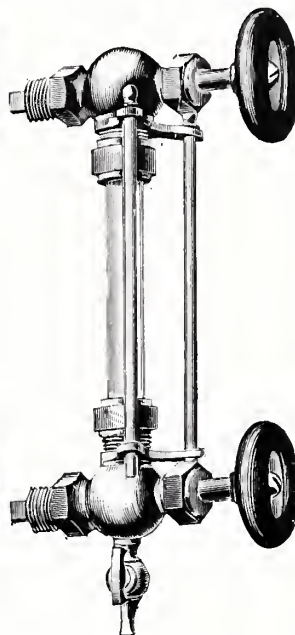


Fig. 457.

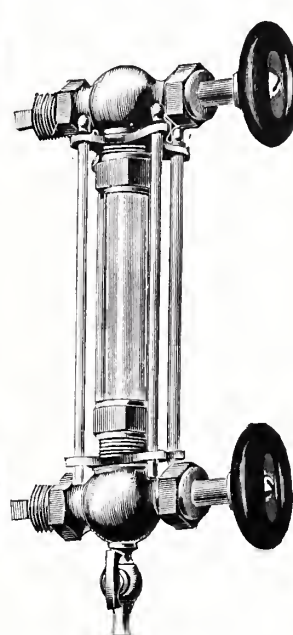


Fig. 458.

	No.	Threaded.	Size Glass.	Price.
Fig. 455 . . . . .	1	$\frac{1}{2}$ in.	$\frac{9}{16}$ x 12 in.	\$2.50
" 456, Iron Wheel, Rough Body . . . . .	2	$\frac{1}{2}$ "	$\frac{9}{16}$ x 12 "	3.00
" 456 " " Finished Body . . . . .	3	$\frac{3}{8}$ "	$\frac{1}{2}$ x 12 "	3.50
" 456 " " " " . . . . .	4	$\frac{1}{2}$ "	$\frac{9}{16}$ x 12 "	4.25
" 456 " " Rough Body . . . . .	5	$\frac{3}{4}$ "	$\frac{3}{4}$ x 12 "	5.00
" 457, Wood Wheel, Finished Body . . . . .	6	$\frac{3}{8}$ "	$\frac{1}{2}$ x 12 "	4.25
" 457 " " " " . . . . .	7	$\frac{1}{2}$ "	$\frac{9}{16}$ x 12 "	5.00
" 457 " " " " . . . . .	8	$\frac{3}{4}$ "	$\frac{3}{4}$ x 14 "	10.00
" 458, Iron Wheel, " " . . . . .	9	$\frac{1}{2}$ "	$\frac{9}{16}$ x 12 "	5.00
" 458, Wood Wheel, " " . . . . .	10	$\frac{1}{2}$ "	$\frac{9}{16}$ x 12 "	7.00
" 458 " " " " . . . . .	11	$\frac{3}{4}$ "	$\frac{3}{4}$ x 14 "	12.00

Rubber Washers for Water Gauges, per dozen, 35c.



SCOTCH GLASS TUBES.

SCOTCH GLASS TUBES.



Fig. 459.

PRICES PER DOZ.

EXTERNAL DIAMETER--IN.	$\frac{1}{2}$	$\frac{3}{8}$
Length, 10 in. . . . .	\$4.80	4.80
11 " . . . . .	4.80	4.80
12 " . . . . .	5.40	5.40
13 " . . . . .	5.40	5.40
14 " . . . . .	6.00	6.00
15 " . . . . .	6.60	6.60
16 " . . . . .	7.20	7.20
17 " . . . . .	7.80	7.80
18 " . . . . .	8.40	8.40
19 " . . . . .	9.00	9.00
20 " . . . . .	9.60	9.60
22 " . . . . .	10.80	10.80
24 " . . . . .	12.00	12.00
30 " . . . . .	16.00	16.00
36 " . . . . .	20.00	20.00

Larger sizes furnished if

GAUGE GLASS CUT

SIMPLEX GAUGE GLASS CUTTER.



Fig. 460.

- Fig. 460. Simplex Gauge Glass Cutter, each, 25 cents  
" 461. H. & C. Gauge Glass Cutter, No. 1, 5 inch,  
Extra Wheels, each, 10 c

CHESTERTON'S.



Fig. 462.

Nickel Plated, each . . . . . \$2.00

ERRATUM.

Please paste opposite page 711 our New Catalogue.

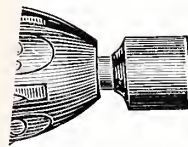
The List Price Fig. 2064, 3-4 x 8, should be \$13.00.

# BOILER TUBE BRUSHES AND CLEANERS.

STEEL WIRE FLUE BRUSH.



4	3 1/2	3 1/4	3
3.75	3.50	3.25	3.00
2.75	2.50	2.25	2.00
1.75	1.50	1.25	1.00



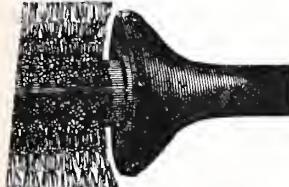
6	5	4 1/2	4	3 1/2	3 1/4	3
6.00	5.00	4.25	4.00	3.25	3.00	2.75

BRUSH.



4	3 1/2	3 1/4	3	2 3/4	2 1/2	2 1/4
2.50	2.25	2.00	1.75	1.60	1.50	1.40

FLUE BRUSH.



\$1.00. Made any size.

MAY 3, 1894.

**SMITH & WINCHESTER CO.**—*Price List Wrought Iron Pipe.*  
PLEASE PASTE ON PAGE 3 OUR NEW CATALOGUE.  
TO TAKE THE PLACE OF ALL PREVIOUS LISTS.  
**BUTT WELDED.**

Subject to change without notice.

INSIDE DIAMETER.	PRICE PER FOOT, Plain.	PRICE PER FOOT, Tapered.	PRICE PER FOOT, Galvanized.	PRICE PER FOOT, Patent Enamelled.	WEIGHT PER FOOT.	INSIDE DIAMETER.	PRICE PER FOOT, Plain.	PRICE PER FOOT, Tapered.	PRICE PER FOOT, Galvanized.	PRICE PER FOOT, Patent Enamelled.	WEIGHT PER FOOT.
Inches.	\$ C.	\$ C.	\$ C.	\$ C.		Inches.	\$ C.	\$ C.	\$ C.	\$ C.	
1/8	.04	.05	.05	.05	.24	1/4	.07 1/2	.10	.10	.10	1.12
3/8	.04 1/2	.06	.05 1/2	.05 1/2	.42	1/2	.11	.14	.14	.14	1.67
1/2	.06	.08	.08	.08 1/2	.56	3/4	.14 1/2	.19	.19	.19	2.24

DISCOUNTS.

Black,

Tapered,

Galvanized,

Enamelled.

**LAP WELDED.**

INSIDE DIAMETER.	PRICE PER FOOT, Plain.	PRICE PER FOOT, Tapered.	PRICE PER FOOT, Galvanized.	PRICE PER FOOT, Patent Enamelled.	WEIGHT PER FOOT.	INSIDE DIAMETER.	PRICE PER FOOT, Plain.	PRICE PER FOOT, Tapered.	PRICE PER FOOT, Galvanized.	PRICE PER FOOT, Patent Enamelled.	WEIGHT PER FOOT.
Inches.	\$ C.	\$ C.	\$ C.	\$ C.		Inches.	\$ C.	\$ C.	\$ C.	\$ C.	
1 1/2	.24	.32	.28	.28	2.68	7	.275	2.10	2.10	2.10	23.27
2	.30	.42	.38	.38	3.61	8	3.75	2.75	2.75	2.75	28.18
2 1/2	.33	.50	.42	.42	4.74	9	4.75	3.75	3.75	3.75	33.70
3	.36	.57	.48	.48	5.74	10	5.74	4.75	4.75	4.75	40.06
3 1/2	.40	.64	.54	.54	6.66	11	6.66	5.74	5.74	5.74	45.02
4	.44	.70	.60	.60	7.54	12	7.54	6.66	6.66	6.66	49.00
4 1/2	.48	.76	.66	.66	8.40	13	8.40	7.54	7.54	7.54	54.00
5	.52	.82	.70	.70	9.24	14	9.24	8.40	8.40	8.40	58.00
6	.56	.88	.76	.76	10.08	15	10.08	9.24	9.24	9.24	62.00

DISCOUNTS.

Black,

Tapered,

Galvanized,

Enamelled.

For pipe cut to lengths the discount will be 5 per cent. less on the list price.

SCOTCH GLASS TUBES.

SCOTCH GLASS TUBES.



Fig. 459.

PRICES PER DOZEN.

EXTERNAL DIAMETER. IN.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Length, 10 in. . . . .	\$4.80	4.80	Tubes shorter than 14 inches, \$6.60 per doz.	Tubes shorter than 15 inches, \$8.40 per doz.	Tubes shorter than 17 inches, \$10.80 per doz.
11 " . . . . .	4.80	4.80			
12 " . . . . .	5.40	5.40			
13 " . . . . .	5.40	5.40	6.60		
14 " . . . . .	6.00	6.00	7.20	8.40	
15 " . . . . .	6.60	6.60	7.20	9.00	
16 " . . . . .	7.20	7.20	7.80	9.60	10.80
17 " . . . . .	7.80	7.80	8.40	10.20	11.40
18 " . . . . .	8.40	8.40	9.00	10.80	12.00
19 " . . . . .	9.00	9.00	9.60	11.40	13.20
20 " . . . . .	9.60	9.60	10.20	12.00	15.00
22 " . . . . .	10.80	10.80	11.40	15.00	18.00
24 " . . . . .	12.00	12.00	12.60	18.00	24.00
30 " . . . . .	16.00	16.00	20.00	25.00	35.00
36 " . . . . .	20.00	20.00	25.00	30.00	40.00

Larger sizes furnished if desired.

GAUGE GLASS CUTTERS.

SIMPLEX GAUGE GLASS CUTTER.



Fig. 460.

H. & C. GAUGE GLASS CUTTER.



Fig. 461.

Fig. 460. Simplex Gauge Glass Cutter, each, 25 cents.  
" 461. H. & C. Gauge Glass Cutter, No. 1, 5 inch, \$2.50; No. 2, 7 inch, each, \$3.00.  
Extra Wheels, each, 10 cents.

CHESTERTON'S.

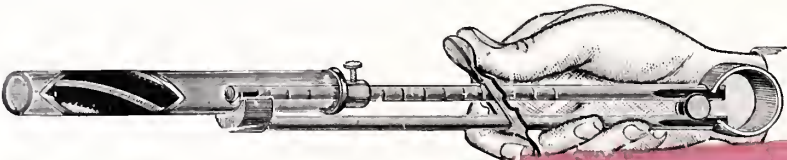


Fig. 462.

Nickel Plated, each . . . . .

# BOILER TUBE BRUSHES AND CLEANERS.

STEEL WIRE FLUE BRUSH.

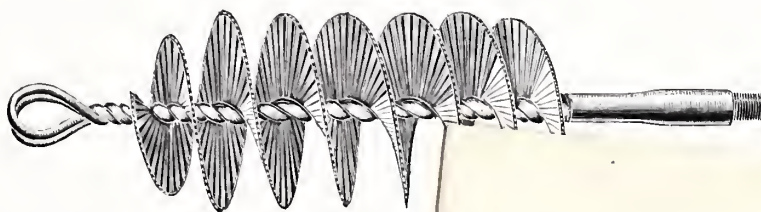


Fig. 463.

SIZE . . . . . INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$
------------------------	-----------------	-----------------	-----------------	---	-----------------

Fig. 463, Bright . . . . .	\$1.45	1.55	1.70	1.90	2.10
" 463, Black . . . . .	1.10	1.20	1.20	1.25	1.40

INGALLS FLUE SC

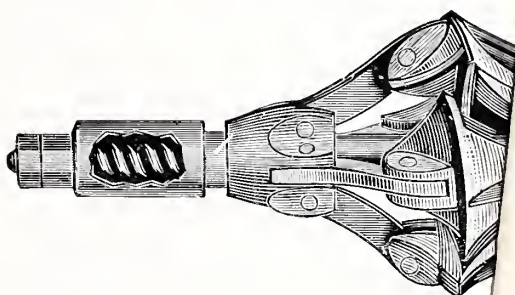


Fig. 464.

SIZE . . . . . INCHES.	2	2 $\frac{1}{4}$
Fig. 464, Price . . . . .	\$2.00	2.25

RICE'S STEEL WIRE



Fig. 465.

SIZE . . . . . INCHES.	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$
Fig. 465, Price . . . . .	\$1.10	1.10	1.20	1.20

ABRAMS STEEL

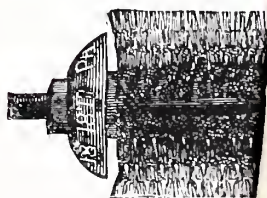


Fig. 466.

Fig. 466, Per Inch . . . . .



BOILER TUBE BRUSHES AND CLEANERS.  
CONTINUED.

LARGE FLUE BRUSH.

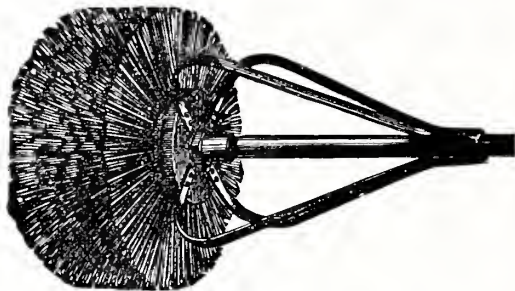


Fig. 467.

Fig. 467. Per Inch . . . . . \$1.00. 10 to 36 Inches.

ENGINEERS' FAVORITE TUBE CLEANER.

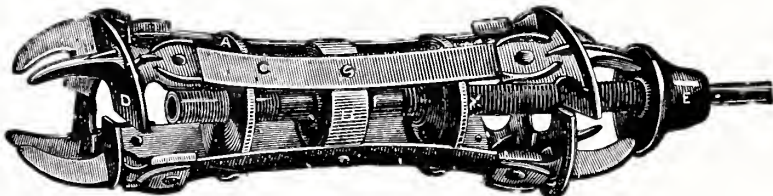


Fig. 468.

NATIONAL TUBE CLEANER.

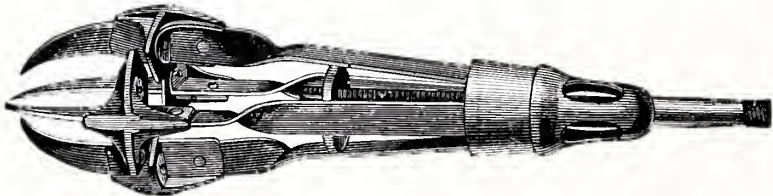


Fig. 469.

SIZE . . . . . INCHES.	1¼	1½	1¾	2	2¼	2½	2¾	3	3¼	3½	4	4½	5	6
Fig. 468 . . . . .			\$2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	4.00	4.50	6.25	7.50
" 469 . . . . .	2.00	2.00	2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	4.00	4.50	5.00	7.50

CHRISTOFFEL SPRING TUBE CLEANER.

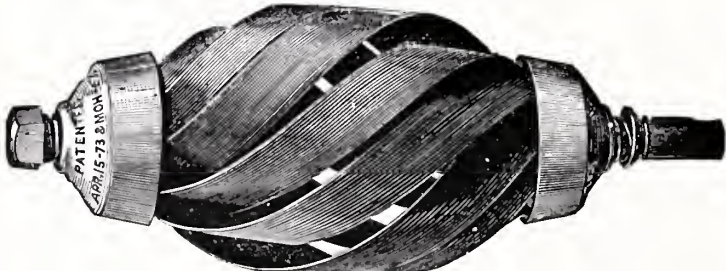


Fig. 470.

SIZE . . . . . INCHES.	1¼	1½	2	2¼	2½	2¾	3	3¼	3½	3¾	4	4½	5	6
Fig. 470 . . . . .	\$2.00	2.00	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	5.65	6.25	7.50

TUBE CLEANERS AND EXPANDERS.

McLAUGHLIN'S STEAM TUBE CLEANER.

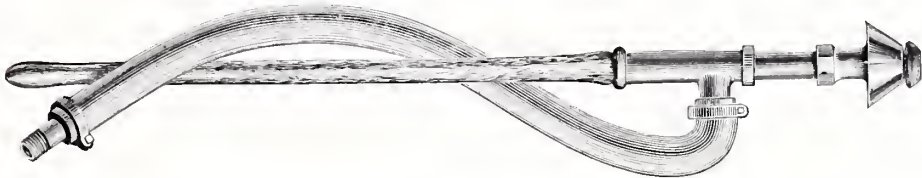


Fig. 471.

NUMBER . . . . .	0	1	2	3	4
For Tubes . . . . .	1 to 1 $\frac{3}{4}$	1 $\frac{1}{2}$ to 2 $\frac{1}{4}$	2 to 3	2 $\frac{1}{2}$ to 5	4 to 6
Each . . . . .	\$7.00	8.00	9.00	10.00	12.00
Size Hose Required . . . . .	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1

Above for Cleaners only. Valves and Hose extra. For price of Hose see Steam Hose.

PROSSER'S SPRING TUBE EXPANDER.



Fig. 472.

SIZE . . . . . IN.	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	4	5	6
Each . . . . .	\$8.00	8.00	9.00	11.00	12.00	13.00	15.00	18.00	22.00	26.00	30.00	33.00	42.00	60.00

HENDERER ROLLER TUBE EXPANDER.

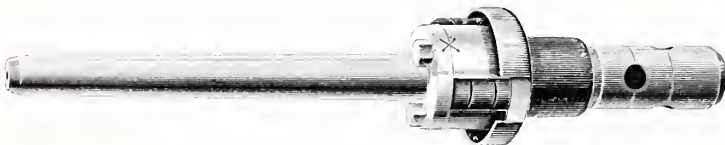
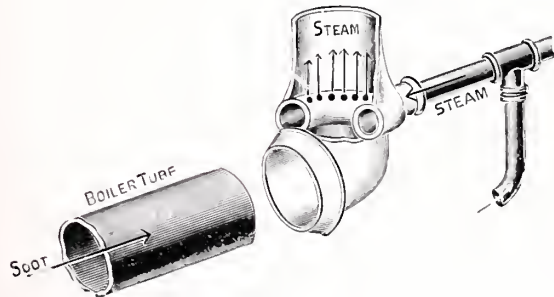


Fig. 473.

SIZE . . . . . IN.	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{3}{4}$	4
Each . . . . .	\$7.00	7.00	8.00	9.00	10.00	12.00	14.00	16.00	18.00	20.00	23.00	25.00	28.00

BALDWIN'S VACUUM TUBE CLEANER.



1 inch Tube . . . . .	\$9.00
1 $\frac{1}{2}$ " " . . . . .	9.50
2 " " . . . . .	10.00
2 $\frac{1}{2}$ " " . . . . .	10.50
3 " " . . . . .	11.00
3 $\frac{1}{2}$ " " . . . . .	11.50
4 " " . . . . .	12.00
4 $\frac{1}{2}$ " " . . . . .	12.50
5 " " . . . . .	13.00
Handle and Fittings . . . . .	3.50

Fig. 474.

SECTIONAL PIPE COVERING.

ASBESTOS SPONGE MOULDED COVERING.

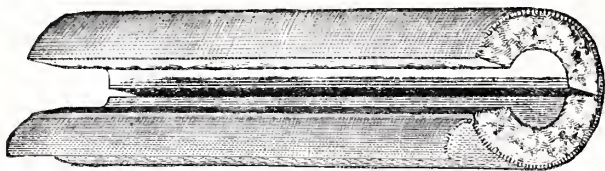


Fig. 475.

INSIDE DIAM-ETER OF PIPE.	COVERING, per Foot.	ELBOWS, Each.	TEES, Each.	VALVES, Each.	INSIDE DIAM-ETER OF PIPE.	COVERING, per Foot.	ELBOWS, Each.	TEES, Each.	VALVES, Each.
$\frac{1}{2}$ , $\frac{3}{4}$ in . .	\$0.17	.20	.28	.21	4 in . . .	\$0.37	.37	.50	.50
1 " . .	.18	.20	.28	.21	4 $\frac{1}{2}$ " . . .	.39	.39	.54	.54
1 $\frac{1}{4}$ " . .	.19	.20	.28	.21	5 " . . .	.42	.42	.57	.57
1 $\frac{1}{2}$ " . .	.20	.20	.28	.21	6 " . . .	.48	.48	.64	.64
2 " . .	.23	.23	.30	.24	7 " . . .	.54	.54	.74	.74
2 $\frac{1}{2}$ " . .	.25	.25	.34	.34	8 " . . .	.62	.62	.82	.82
3 " . .	.30	.30	.42	.42	9 " . . .	.67	.67	.92	.92
3 $\frac{1}{2}$ " . .	.34	.34	.45	.45	10 " . . .	.74	.74	1.00	1.00

Elbows, Tees, etc., to match.

Each section is three feet in length, and is furnished with canvas cover and bands or straps for fastening.

ASBESTOS FIRE-FELT COVERING FOR STEAM PIPES.



Fig. 476.

INSIDE DIAM-ETER OF PIPE.	COVERING, per Foot.	ELBOWS, Each.	TEES, Each.	VALVES, Each.	INSIDE DIAM-ETER OF PIPE.	COVERING, per Foot.	ELBOWS, Each.	TEES, Each.	VALVES, Each.
$\frac{1}{2}$ , $\frac{3}{4}$ in . .	\$0.20	.27	.35	.27	4 in . . .	\$0.48	.50	.65	.65
1 " . .	.23	.27	.35	.27	4 $\frac{1}{2}$ " . . .	.53	.60	.74	.74
1 $\frac{1}{4}$ " . .	.25	.27	.35	.27	5 " . . .	.58	.69	.80	.80
1 $\frac{1}{2}$ " . .	.27	.27	.35	.27	6 " . . .	.63	.82	.92	.92
2 " . .	.30	.30	.40	.30	7 " . . .	.69	.95	1.05	1.05
2 $\frac{1}{2}$ " . .	.35	.35	.45	.45	8 " . . .	.75	1.13	1.25	1.25
3 " . .	.40	.40	.55	.55	9 " . . .	.85	1.25	1.50	1.50
3 $\frac{1}{2}$ " . .	.44	.45	.60	.60	10 " . . .	.95	1.40	1.75	1.75

Each section is three feet in length, and is furnished with canvas cover and bands or straps for fastening.

Elbows, Tees, Valves, and other fittings to match.



## SECTIONAL PIPE COVERING.

CONTINUED.

## MAGNESIA PIPE COVERING.

36 INCHES IN LENGTH. PRICE INCLUDES FASTENINGS.

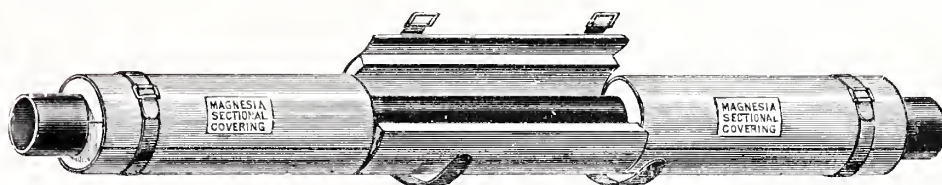


Fig. 477.

## MAGNESIA FITTING COVERINGS.

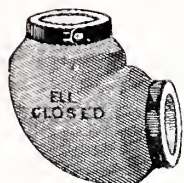


Fig. 478.

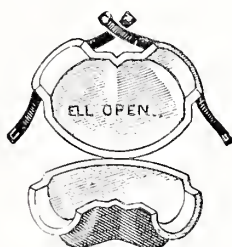


Fig. 479.

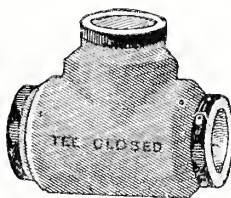


Fig. 480.

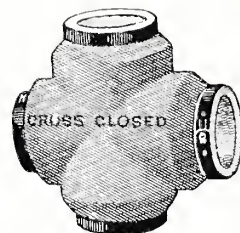


Fig. 481.

MAGNESIA PIPE AND FITTING COVERINGS—Figs. 477, 478, 479, 480, 481.

SIZE. . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8	10
Elbows and 45° Elbows . .	\$0.16	.20	.20	.20	.20	.22	.25	.29	.32	.35	.40	.46	.52	.66	.80	1.00
Tees . . . . .	.24	.26	.26	.26	.26	.29	.33	.38	.42	.47	.52	.60	.72	.96	1.08	1.40
Crosses . . . . .	.28	.34	.34	.34	.34	.38	.42	.48	.54	.60	.64	.72	.80	.88	.96	1.20
Globe Valves . . . . .	.20	.20	.20	.20	.20	.22	.33	.38	.42	.47	.52	.60	.72	.96	1.08	1.40
Per foot Pipe Covering . .	.15	.16	.18	.20	.22	.24	.27	.30	.34	.38	.42	.46	.50	.55	.60	.75
Weight per foot . . . Oz.	8	9	10	12	15	18	20	24	26	30	38	44	48	55	65	85

Magnesia Plaster Covering, \$5.50 per bbl. of 60 lbs.



STEAM PACKING.

CHESTERTON'S PACKING.

SQUARE FLAX PACKING.

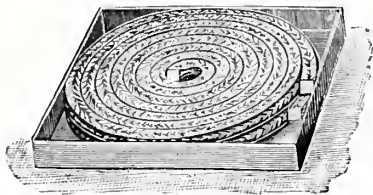


Fig. 482.

Price per lb. . . . . \$0.85

"PERFECTION" PACKING.



Fig. 483.

Price per lb. . . . . \$0.75

"EXPANSION" RING PACKING.

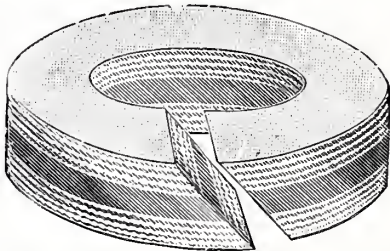


Fig. 484.

1 inch . . . . .	\$0.15	2 1/2 inch . . . . .	\$0.40	4 inch . . . . .	\$0.80	5 1/2 inch . . . . .	\$1.40
1 1/4 " . . . . .	.20	2 3/4 " . . . . .	.45	4 1/4 " . . . . .	.90	5 3/4 " . . . . .	1.50
1 1/2 " . . . . .	.25	3 " . . . . .	.50	4 1/2 " . . . . .	1.00	6 " . . . . .	1.60
1 3/4 " . . . . .	.28	3 1/4 " . . . . .	.55	4 3/4 " . . . . .	1.10	7 " . . . . .	1.70
2 " . . . . .	.30	3 1/2 " . . . . .	.60	5 " . . . . .	1.20	8 " . . . . .	1.80
2 1/4 " . . . . .	.35	3 3/4 " . . . . .	.70	5 1/4 " . . . . .	1.30		

In ordering, give exact diameters of Stuffing Box and Rod.  
We also make this Sectional if desired ; also in Spiral form.

DIAPHRAGMS.

LOW PRESSURE.



Fig. 485.

HIGH PRESSURE.

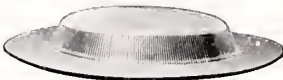


Fig. 486.

LOW PRESSURE.

9 in. diameter, . . . . .	Each \$1.00
9 1/2 " " . . . . .	" 1.10

HIGH PRESSURE.

No. 1 size, . . . . .	Each \$0.60
2 " . . . . .	" .80
3 " . . . . .	" 1.60
4 " . . . . .	" 3.00

# STEAM PACKING—CONTINUED.

## RUBBER PACKING—CLOTH INSERTION.

SIZE . . IN.	$\frac{1}{64}$	$\frac{1}{32}$	$\frac{1}{16}$	$\frac{3}{32}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$
1 Ply, per lb.	\$0.70	.65	.60	. . .	. . .	. . .	. . .
2 " " "	. . .	. . .	.63	.58	.55	. . .	. . .
3 " " "	. . .	. . .	. . .	.61	.58	.55	. . .
4 " " "	. . .	. . .	. . .	. . .	.61	.58	.55

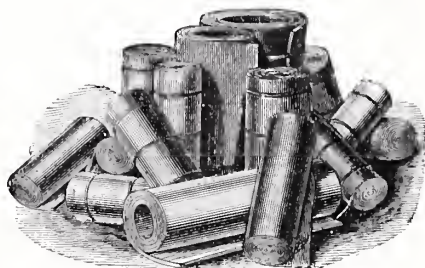


Fig. 487.

### GASKETS.

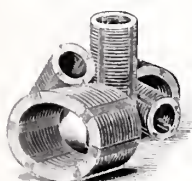


Fig. 488.

## MAN-HOLE GASKETS AND RINGS.

Plain or Cloth Insertion, $\frac{1}{16}$ inch or less . . . . .	per lb.,	\$1.25
" " " " $\frac{3}{32}$ " and upwards . . . . .	" "	1.50
Pure Rubber, per lb. . . . .		1.50

## RUBBER VALVES.

Rubber Valves, per lb. . . . .	\$1.50
--------------------------------	--------

## SQUARE AND ROUND PISTON PACKING.

### ROUND PISTON PACKING.

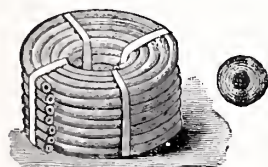


Fig. 489.

Square, from $\frac{1}{4}$ to $1\frac{1}{2}$ inches, per lb. .	\$0.85
Round, " $\frac{1}{4}$ to $1\frac{1}{2}$ " " " .	.85
Rubber Back Piston Packing, square, from $\frac{1}{4}$ to $1\frac{1}{2}$ inches, per lb. . . . .	1.00

### SQUARE PISTON PACKING.

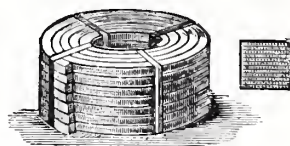


Fig. 490.

### AMERICAN PACKING.



Fig. 491.

### ASBESTOS AND COTTON WICK.

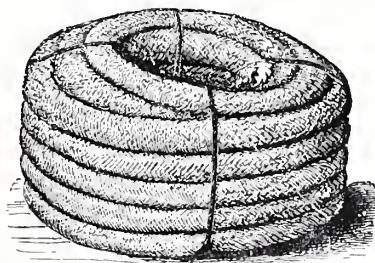


Fig. 492.

### SELDEN'S PISTON PACKING.

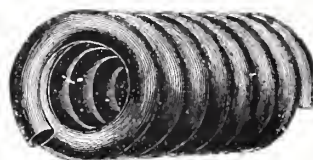


Fig. 493.

Selden's Packing with Rubber Core, per lb. . . . .	\$0.75
" " " " Canvas " " " . . . . .	.65
American Packing, per lb. . . . .	.75
Cotton Wick Packing, per lb. . . . .	.80

STEAM PACKING—CONTINUED.

GARLOCKS.

ELASTIC RING.

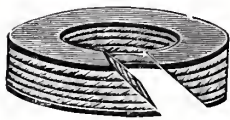


Fig. 494.

SPIRAL.



Fig 495.

SECTIONAL RING.



Fig. 496.

ELASTIC AND SECTIONAL RING.

Diameter in Inches.	Price per Inch in Depth of Stuffing Box.	Diameter in Inches.	Price per Inch in Depth of Stuffing Box.	Diameter in Inches.	Price per Inch in Depth of Stuffing Box.	Diameter in Inches.	Price per Inch in Depth of Stuffing Box.
1	\$0.12	3	\$0.45	5	\$0.85	8	\$1.25
1 $\frac{1}{4}$	.15	3 $\frac{1}{4}$	.50	5 $\frac{1}{4}$	.90	8 $\frac{1}{2}$	1.30
1 $\frac{1}{2}$	.18	3 $\frac{1}{2}$	.55	5 $\frac{1}{2}$	.95	9	1.35
1 $\frac{3}{4}$	.20	3 $\frac{3}{4}$	.60	5 $\frac{3}{4}$	1.00	9 $\frac{1}{2}$	1.40
2	.25	4	.65	6	1.05	10	1.45
2 $\frac{1}{4}$	.30	4 $\frac{1}{4}$	.70	6 $\frac{1}{2}$	1.10	10 $\frac{1}{2}$	1.50
2 $\frac{1}{2}$	.35	4 $\frac{1}{2}$	.75	7	1.15	11	1.55
2 $\frac{3}{4}$	.40	4 $\frac{3}{4}$	.80	7 $\frac{1}{2}$	1.20	..	..

The Elastic and Sectional Rings made in any size from  $\frac{3}{8}$  to 30 in. diameter. The Spiral Packing is made 12 feet long, and in sizes from  $\frac{3}{16}$  to 2 inches.

In ordering, give exact diameter of Stuffing Box and Piston Rod or Valve Stem.

Spiral Packing, \$1.20 per lb.

STEAM PACKING, ETC.

Dirigo Square and Round Packing, in boxes . . . . .	Per ft.	\$0.70
Empire Gum Core Packing, square and round . . . . .	"	.50
Eureka . . . . .	"	1.00
Flax Packing, square, in boxes . . . . .	"	.80
" Skeins . . . . .	"	.50
Italian Hemp Packing . . . . .	"	.30
Jenkins Sheet Packing . . . . .	"	.80
Jute Packing . . . . .	"	.15
Asbestos Cement . . . . .	Per bbl.	4.00
" Hot Blast Cement . . . . .	"	5.50
" Sheetting in Rolls, 300 square feet, 36 in. wide, $\frac{3}{32}$ in. thick . . . . .	Per sq. ft.	.06
" " " " " " $\frac{1}{4}$ " . . . . .	"	.07
" " " " " " " " . . . . .	"	.10
" In Sheets, 24 x 36, $\frac{1}{2}$ in. thick . . . . .	"	.18
" " " " " " " " . . . . .	"	.25
" " " " " " " " . . . . .	"	.33
" Mill Board . . . . .	Per lb.	.25
" Sheet Packing, 40 x 40 in., $\frac{1}{16}$ to $\frac{1}{2}$ in. thick . . . . .	"	.25
" Gaskets, $\frac{1}{32}$ to $\frac{1}{2}$ in. thick, cut to order . . . . .	"	.70
" Rings and Washers, 3 in. or less in diameter . . . . .	"	1.25
" Piston Rod Packing, $\frac{1}{4}$ to 2 in. in diameter . . . . .	"	.50
" Braided " " " " . . . . .	"	.50
" Lubricated " " " " . . . . .	"	.50
" and Hemp Lubricated Packing, $\frac{1}{4}$ to 2 in. in diameter . . . . .	"	.50
" Wick Packing, $\frac{1}{4}$ , $\frac{1}{2}$ and 1 lb. balls . . . . .	"	.50
" Building Felt . . . . .	"	.12
" Sheathing . . . . .	"	.15
" Water-Proof Sheathing . . . . .	"	.20
Vulcanbeston Sheet Packing, $\frac{1}{16}$ in. and up . . . . .	"	1.00
" " " " " " less than $\frac{1}{16}$ in. . . . .	"	1.25
Vulcanized Asbestos Piston Rod Packing . . . . .	"	1.00
" " " " " " $\frac{1}{16}$ in. . . . .	"	1.25
Asbestos Fire-Proof Rope . . . . .	"	1.20
" Cord . . . . .	"	1.00
" Twine . . . . .	"	1.20
" Sewing Twine . . . . .	"	1.50

# CORRUGATED COPPER GASKETS.

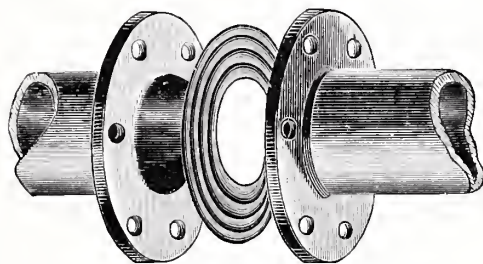


Fig. 497.

## GASKETS FOR UNIONS.

Size of Union.	Inside Diameter of Gasket, Inches.	Outside Diameter of Gasket, Inches.	PRICE.	Size of Union.	Inside Diameter of Gasket, Inches.	Outside Diameter of Gasket, Inches.	PRICE.
$\frac{1}{4}$	$\frac{7}{16}$	$\frac{3}{4}$	\$0.02	$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{2}$	\$0.05
$\frac{3}{8}$	$\frac{1}{8}$	$\frac{7}{8}$	.02	2	$2\frac{1}{4}$	3	.07
$\frac{1}{2}$	$\frac{1}{4}$	$1\frac{1}{4}$	.02	$2\frac{1}{2}$	$2\frac{7}{8}$	$3\frac{1}{2}$	.06
$\frac{3}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	.02	3	$3\frac{1}{4}$	$4\frac{1}{4}$	.06
1	$1\frac{1}{8}$	$1\frac{3}{4}$	.03	$3\frac{1}{2}$	$3\frac{3}{4}$	$4\frac{3}{4}$	.11
$1\frac{1}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	.05	4	$4\frac{3}{8}$	$5\frac{1}{2}$	.18

## GASKETS FOR FLANGE UNIONS.

Size Flange Union.	Inside Diameter of Gasket, Inches.	Outside Diameter of Gasket, Inches.	PRICE.	Size Flange Union.	Inside Diameter of Gasket, Inches.	Outside Diameter of Gasket, Inches.	PRICE.
$\frac{3}{4}$	1	$1\frac{3}{4}$	\$0.04	$4\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{3}{8}$	\$0.27
1	$1\frac{1}{8}$	$2\frac{1}{4}$	.05	5	$5\frac{1}{2}$	$6\frac{7}{8}$	.27
$1\frac{1}{4}$	$1\frac{1}{4}$	$2\frac{1}{2}$	.07	6	$6\frac{1}{4}$	$8\frac{1}{4}$	.42
$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{3}{4}$	.07	7	$7\frac{3}{4}$	$9\frac{3}{8}$	.44
2	$2\frac{1}{8}$	$3\frac{1}{8}$	.09	8	$8\frac{1}{4}$	$10\frac{1}{2}$	.53
$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{3}{4}$	.10	9	10	$12\frac{1}{8}$	.84
3	$3\frac{1}{8}$	$4\frac{1}{2}$	.14	10	11	$12\frac{7}{8}$	.70
$3\frac{1}{2}$	$3\frac{3}{4}$	$5\frac{1}{4}$	.19	12	$12\frac{3}{4}$	15	.98
4	$4\frac{1}{8}$	$5\frac{3}{4}$	.18	. .	. .	. .	. .

## GASKETS FOR FLANGED FITTINGS.

Size of Fitting.	Inside Diameter of Gasket, Inches.	Outside Diameter of Gasket, Inches.	PRICE.	Size of Fitting.	Inside Diameter of Gasket, Inches.	Outside Diameter of Gasket, Inches.	PRICE.
2	$2\frac{1}{4}$	$4\frac{1}{4}$	\$0.16	9	$10\frac{1}{2}$	13	\$0.92
$2\frac{1}{2}$	$3\frac{1}{4}$	$4\frac{3}{4}$	.18	10	$10\frac{3}{4}$	$13\frac{1}{2}$	.94
3	$4\frac{1}{4}$	$5\frac{3}{4}$	.24	12	13	16	1.37
$3\frac{1}{2}$	$4\frac{3}{4}$	6	.25	14	$14\frac{1}{2}$	$17\frac{1}{2}$	1.51
4	5	$6\frac{3}{4}$	.33	15	$15\frac{1}{2}$	$18\frac{1}{2}$	1.61
$4\frac{1}{2}$	$5\frac{1}{2}$	7 $\frac{1}{4}$	.35	16	$17\frac{1}{2}$	$20\frac{1}{2}$	1.79
5	6	$7\frac{1}{4}$	.37	18	19	22	1.93
6	7	$8\frac{3}{4}$	.43	20	$20\frac{3}{4}$	$23\frac{3}{4}$	2.10
7	$7\frac{3}{4}$	$10\frac{1}{4}$	.71	22	$23\frac{1}{2}$	$26\frac{1}{2}$	2.36
8	$8\frac{3}{4}$	11 $\frac{1}{4}$	.79	24	$25\frac{1}{2}$	$28\frac{1}{2}$	2.55

These metallic gaskets may be used in place of rubber or other destructible materials in general use for packing. It consists of thin sheet copper, stamped with concentric corrugations. Three to six corrugations are all that are necessary, so that the space within the bolt holes determines the width of the gasket.



COTTON WASTE.

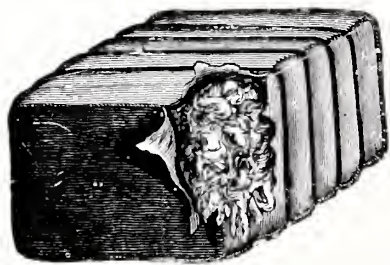


Fig. 498.

Per lb. . . . . \$0.16.

HAIR FELTING.

THICKNESS . . . . . INCHES,	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Price per square foot . . . . .	\$0.05 $\frac{1}{2}$	.06 $\frac{1}{2}$	.08	.09 $\frac{1}{2}$	.12	.15	.20

NEW ENGLAND EMERY CLOTH.

MADE FROM WELLINGTON MILLS LONDON EMERY.

IN SHEETS 9 x 11.

PER QUIRE.		PER QUIRE.	
No. F. F. . . . .	\$0.90	No. 70 or No. $1\frac{1}{2}$ . . . . .	\$0.90
F. or No. 00 . . . . .	.90	60 " 2 . . . . .	1.00
120 or No. 0 . . . . .	.90	54 " $2\frac{1}{2}$ . . . . .	1.20
100 . . . . .	.90	46 " 3 . . . . .	1.30
90 or No. $\frac{1}{2}$ . . . . .	.90	Crocus Cloth . . . . .	.90
80 " 1 . . . . .	.90		

IN ROLLS 25 YARDS EACH.

PER ROLL.		PER ROLL.	
Nos. 00 to $1\frac{1}{2}$ , 9 inches wide . . . . .	\$3.75	Nos. 00 to $1\frac{1}{2}$ , 18 inches wide . . . . .	\$7.50
2 " 9 " " . . . . .	4.50	2 " 18 " " . . . . .	9.00
$2\frac{1}{2}$ " 9 " " . . . . .	5.25	$2\frac{1}{2}$ " 18 " " . . . . .	10.50
3 " 9 " " . . . . .	6.25	3 " 18 " " . . . . .	12.50

ENGINE GOVERNORS.

CLASS A, STANDARD.  
MEDIUM SPEED.

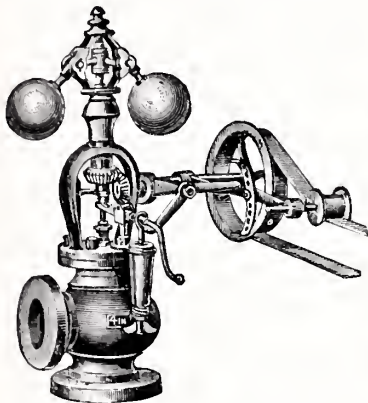


Fig. 499.

CLASS A, SPRING.  
HIGH SPEED.

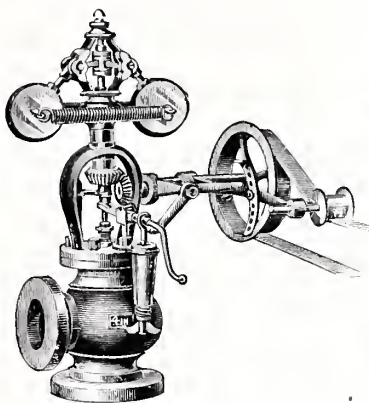


Fig. 500.

CLASS B, STANDARD.  
MEDIUM SPEED.

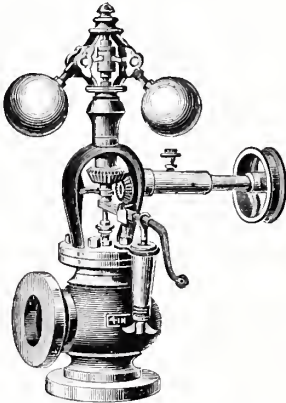


Fig. 501.

JUDSON GOVERNORS.

SIZE . . . . IN.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
Class B, Plain . . . . .	16.00	18.00	20.00	22.00	25.00	30.00	35.00	40.00	45.00	50.00	60.00	71.00	83.00	94.00	108.00	122.00
“ B, Finished . . . . .	18.00	20.00	22.00	25.00	29.00	34.00	40.00	45.00	51.00	58.00	69.00	81.00	94.00	106.00	121.00	136.00
“ A, Plain . . . . .			23.00	25.50	29.50	36.00	42.00	48.00	53.00	59.00	71.00	83.00	96.00	109.00	124.00	140.00
“ A, Finished . . . . .			25.00	28.50	33.50	40.00	47.00	53.00	59.00	67.00	80.00	93.00	107.00	121.00	137.00	154.00
Angle or Globe Stop Valve . . . . .					8.00	9.75	11.50	12.50	15.50	18.00	22.00	25.00	32.00	38.00	44.00	50.00

DIMENSIONS.

SIZE . . . . . IN.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6
Diameter Base Flange . . . . .			$3\frac{3}{4}$	$4\frac{1}{2}$	5	$5\frac{3}{4}$	$6\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	$8\frac{1}{2}$	9	10	11	$11\frac{1}{2}$	12	13
“ Side “ . . . . .								6	$6\frac{1}{2}$	7	8	9	10	$10\frac{1}{2}$	11	12
Centre to Side . . . . .	$1\frac{5}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$4\frac{3}{4}$	$4\frac{3}{4}$	$5\frac{1}{4}$	$5\frac{3}{4}$	$6\frac{1}{2}$	7	7	$7\frac{1}{4}$	$7\frac{5}{8}$	$8\frac{1}{4}$
“ Base . . . . .	2	$2\frac{1}{4}$	$2\frac{3}{8}$	3	$3\frac{3}{8}$	4	$4\frac{1}{2}$	$4\frac{3}{8}$	$5\frac{1}{4}$	$5\frac{3}{8}$	$6\frac{1}{2}$	$7\frac{1}{4}$	$7\frac{1}{2}$	$7\frac{3}{4}$	$8\frac{3}{8}$	$9\frac{1}{4}$
“ End of Shaft . . . . .	7	7	$7\frac{1}{2}$	$10\frac{1}{4}$	$11\frac{3}{4}$	$12\frac{1}{2}$	$13\frac{3}{4}$	$14\frac{1}{4}$	$14\frac{1}{4}$	$15\frac{1}{2}$	17	$18\frac{1}{2}$	21	21	22	23
Extreme Height . . . . .	$11\frac{1}{2}$	$12\frac{3}{4}$	$13\frac{3}{8}$	$18\frac{1}{4}$	$20\frac{1}{2}$	23	$26\frac{3}{4}$	28	$28\frac{3}{4}$	$32\frac{3}{4}$	$35\frac{1}{2}$	38	42	$42\frac{1}{2}$	48	50
Speed Standard Governor . . . . .	260	260	240	210	185	185	175	150	150	140	135	135	130	125	110	105
“ Spring “ . . . . .	305	300	280	270	255	255	230	215	215	205	200	185	175	175	165	145
Diam. Pulley Spring Gov'r . . . . .	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	$3\frac{1}{2}$	4	$4\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$	6	$6\frac{1}{2}$	$7\frac{1}{2}$	$7\frac{1}{2}$	9	10
“ “ Standard Gov'r . . . . .	$2\frac{1}{2}$	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	4	$4\frac{1}{2}$	5	5	6	$6\frac{1}{2}$	$7\frac{1}{2}$	8	8	10	11
Width of Belt . . . . .	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	2	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	$2\frac{1}{2}$	3

All Governors are complete with Speeder, Turned Flanged Pulley and Sawyer's Lever.  
In ordering, if we are informed of speed of engine and diameter of pulley on engine shaft from which governor is driven, we will put proper size of pulley on governor, otherwise the size of pulley mentioned in table will be furnished with each governor. When Stop Valves are ordered, Angle will be sent unless Globe is specified.  
Speed of each Governor stamped on Revolving Head.

ENGINE GOVERNORS—CONTINUED.

CLASS B.

CLASS A, WITH AUTOMATIC SAFETY STOP.

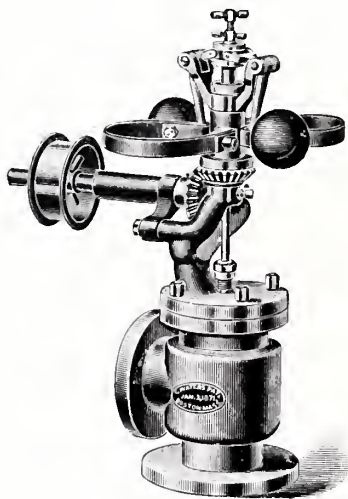


Fig. 502.

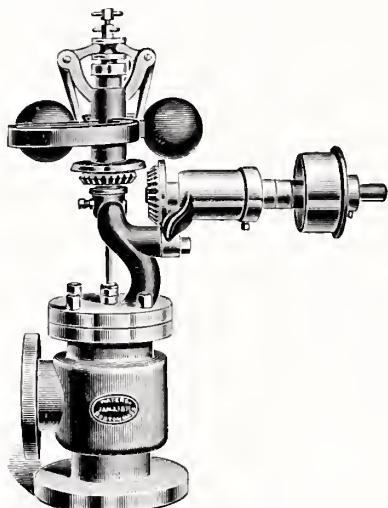


Fig. 503.

WATERS' GOVERNORS.

SIZE OF GOVERNOR— DIAM. OF OPENING.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6
Class B, Plain . . . .	16.00	18.00	20.00	22.00	25.00	30.00	35.00	40.00	50.00	60.00	71.00	83.00	94.00	122.00
“ B, Finished . . . .	18.00	20.00	22.00	25.00	29.00	34.00	40.00	45.00	58.00	69.00	81.00	94.00	106.00	136.00
“ A, Plain . . . . .	23.00	25.50	29.50	36.00	42.00	48.00	59.00	71.00	83.00	96.00	109.00	140.00		
“ A, Finished . . . . .	25.00	28.50	33.50	40.00	47.00	53.00	67.00	80.00	93.00	107.00	121.00	154.00		
Angle or Globe Stop Valve . . . . .				8.00	9.75	11.50	12.50	18.00	22.00	25.00	32.00	38.00	50.00	

Larger sizes furnished. Prices on application.

DIMENSIONS.

SIZE OF GOVERNOR— DIAM. OF OPENING	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{4}$	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6
Diameter of Base Flange . . . Inches.	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	5 $\frac{3}{4}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	8	9	10	11	12	12	14
“ “ Side “ . . . . .					5	6	6 $\frac{1}{2}$	6 $\frac{1}{2}$	7	8	8 $\frac{1}{2}$	9 $\frac{1}{2}$	11	12
“ “ Space required for High Speed Governor. . . . . Inches.	6	8	8	10 $\frac{1}{4}$	10 $\frac{3}{4}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	12 $\frac{1}{2}$	15	15	19	19	19	25
From Centre to Side Flange . .	1 $\frac{1}{2}$	1 $\frac{3}{4}$	2 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{3}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	4 $\frac{1}{8}$	5 $\frac{1}{2}$	6	6 $\frac{1}{2}$	7	8 $\frac{3}{8}$	8 $\frac{1}{2}$
From Base to Centre of Inlet . .	2	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{3}{4}$	4 $\frac{1}{4}$	4 $\frac{1}{4}$	5	5 $\frac{3}{4}$	6 $\frac{1}{2}$	6 $\frac{1}{2}$	7 $\frac{1}{2}$	8 $\frac{1}{2}$	10
Extreme Height . . . . .	16 $\frac{1}{2}$	13 $\frac{1}{2}$	14	16	19	21	21	24	28	30	34	36	38	42
From Centre to End of Shaft . .	6	8 $\frac{1}{2}$	8 $\frac{1}{2}$	9 $\frac{1}{2}$	10 $\frac{1}{2}$	13 $\frac{1}{2}$	13 $\frac{1}{2}$	14	16	17	20	21	22	23
Diameter of Pulley . . . . .	2	2 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3 $\frac{1}{4}$	4	4	4	4	4	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5	6
Width of Belt . . . . .	$\frac{3}{4}$	1	1	1 $\frac{1}{2}$	1 $\frac{1}{2}$	2	2	2	2	2	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$
Revolutions per minute of High Speed Governor. . . . .	500	400	400	325	325	330	330	330	250	250	250	250	250	200
Extra Speeds . . . . .		600	600	430	400									

In Ordering—Governors are described in two classes, “A” and “B,” Class “A” having Automatic Stop Motion, and Class “B” without Stop Motion.

The plain High Speed Governor in accordance with table will be sent in all cases, unless otherwise ordered. Sizes up to and including 1 $\frac{1}{4}$ -inch will be sent screwed unless ordered flanged. In ordering, state whether “A” or “B,” Plain or Finished, with or without Improved Angle or Globe Stop Valve. Give the number of revolutions the engine is to run, diameter of the pulley on the crank-shaft which drives the Governor, and a pulley the proper size for the Governor will be sent. In ordering Springs, always specify size of Governor and state speed at which Governor is marked on top collar to run. This is important. In ordering Valves or Linings, specify whether old one has two ports or four ports. Also state size of Governor, and give number (if there is one) stamped on upper flange of Valve Chamber. The correct speed is plainly stamped on the brass top collar of each Governor.



WRIGHT'S STEAM ENGINE GOVERNOR.

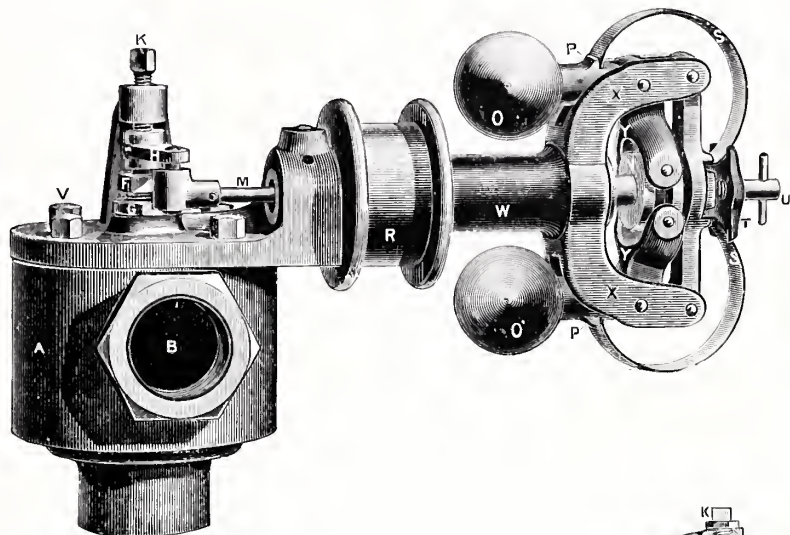


Fig. 504.

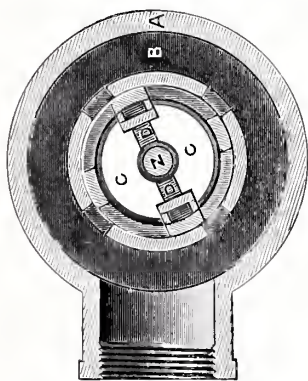


Fig. 505.

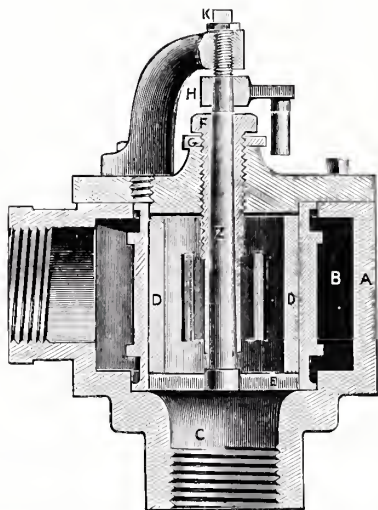


Fig. 506.

SIZE OF GOVERNOR OR STEAM PIPE . IN.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Price . . . . .	\$16.00	18.00	20.00	22.00	25.00	30.00	40.00
With Automatic Stop Motion . . . . .			23.00	25.50	29.50	36.00	48.00
Diameter of Base Flange, (see Note 1) . .	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	$6\frac{1}{2}$	7
“ “ Side “ (see Note 1) . . . . .				$4\frac{1}{2}$	5	6	$6\frac{1}{2}$
From Centre of Governor to Centre of Pulley, (see Note 2) . . . . . Inches.	$2\frac{5}{8}$ to $4\frac{1}{16}$	$2\frac{7}{8}$ to $4\frac{1}{16}$	$2\frac{7}{8}$ to $4\frac{1}{16}$	$3\frac{9}{16}$ to 5	$3\frac{9}{16}$ to 5	$4\frac{5}{8}$ to 6	$4\frac{5}{8}$ to 6
Diameter of Pulley . . . . . “	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	3
Width of Belt . . . . . “	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$
Speed of Governor . . . . . “	500	500	500	450	450	400	400

Note 1. Screwed Inlet and Outlet will be sent unless otherwise ordered. Note 2. If this distance is not right, state the distance required and Governor will be sent accordingly.  
N. B. All brass work is nicked and all springs are polished.  
These Governors are made without packing, driving shaft or gears.



INSPECTORS' TEST PUMP AND GAUGE.



Fig. 507.

- This set consists of 1 Nickel Plated Test Pump.  
1 " " 3½ in. Dial Test Gauge, 300 lbs., 1 lb. marks.  
1 " " Union Cock.  
2 " " ¼ Hexagon Couplings.  
1 Steam Gauge Hand Remover.

This set in velvet lined Morocco Case, weighs 8 pounds.

Price as above. . . . . \$45.00

THE TABOR REVOLUTION COUNTER.

WITH STOP MOTION.

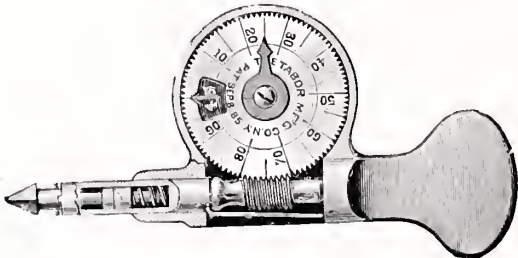


Fig. 508.

Price. . . . . Each \$1.00

# CROSBY STEAM ENGINE INDICATOR.

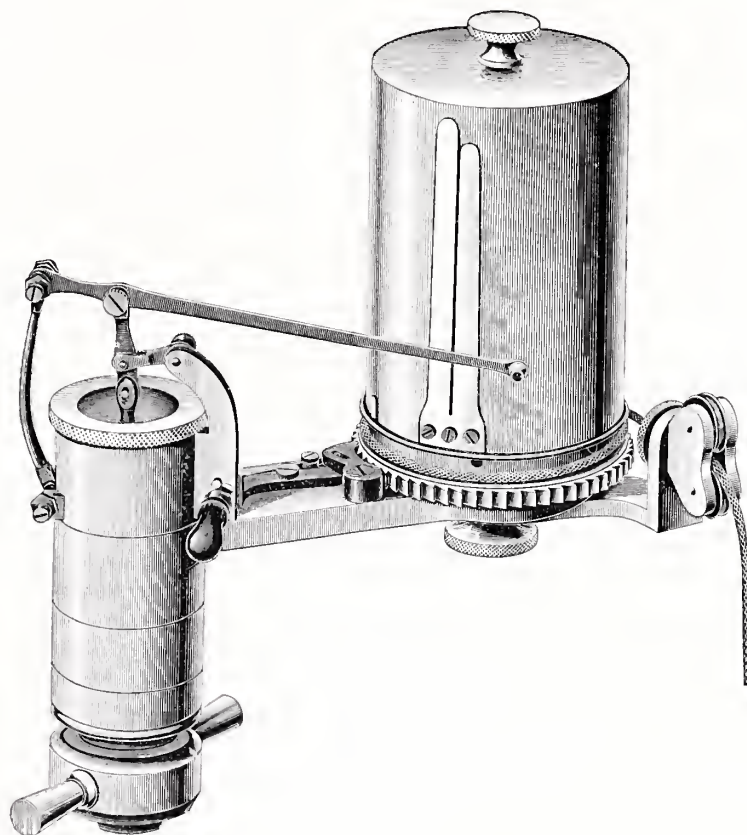


Fig. 509.

## CROSBY STEAM ENGINE INDICATOR.

One Crosby Steam Engine Indicator, with fittings complete, as follows, viz.: One spring, one scale, two wrenches, one screw driver, one bottle of watch oil, one hank of cord, 100 metallic-faced cards, all securely mounted in a velvet lined mahogany case; also one copy of "Practical Instructions for Using the Indicator" (new).

Price . . . . . \$85.00.

THE TABOR IMPROVED INDICATOR.

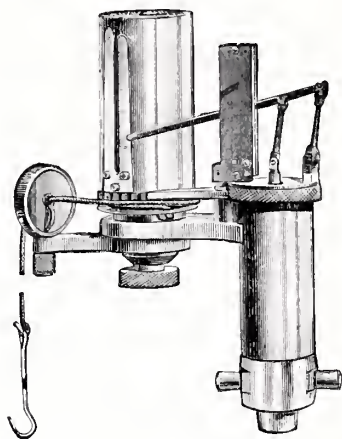


Fig. 510.

The Tabor Improved Indicator complete and full nickel plated, with one spring, one scale, two cocks, 100 plain cards, "Barrus Treatise on the Indicator," one screw driver, one bottle of oil, one extra drum spring and the necessary wrenches, all enclosed in neat black-walnut box with nickel plated trimmings.

Price . . . . . \$85.00

OIL WASTE CANS.

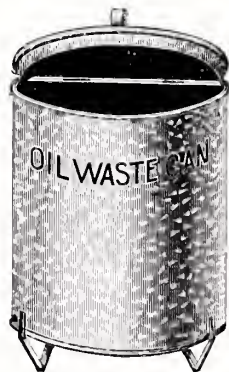


Fig. 511.

Diameter, 11½ inches; height, 15 inches . . . . . Each \$1.00

Special sizes as follows, to order: 12 x 18, 13 x 20, 14 x 22.



## Steam and Hot Water Heaters.

---

IN a general Catalogue like this it would be impossible to do this department of our business justice, owing to the extensive line of Heaters of all sizes and for all purposes which we carry in stock, and can supply at short notice.

We issue separate Catalogues devoted EXCLUSIVELY TO HOT WATER AND STEAM HEATING, which are free to all.

With a large force of draughtsmen and experienced engineers we can readily furnish estimates and plans, which we are pleased to do, free of charge.

Write us your wants.

SMITH & WINCHESTER.

GREENHOUSE HEATING

A SPECIALTY. 





RADIATORS.

CAST IRON.

PERFECTION.



Fig. 512.

PERFECTION  
SPECIAL CAST IRON TOP RADIATOR.  
(TOPS EXTRA.)

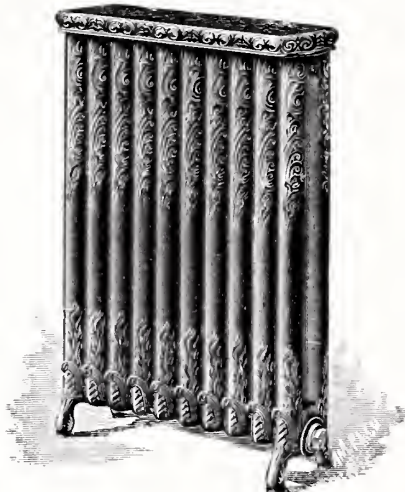


Fig. 513.

FOR STEAM AND HOT WATER.

HEIGHTS . . . 45, 38, 32, 26, 23 and 20 Inches, in Steam : 45, 38, 32, 26 and 20 Inches, in Hot Water.  
Perfections can be furnished plain in Steam or Water. For list of sizes, see page 159.

NATIONAL.



Fig. 514.

IDEAL.

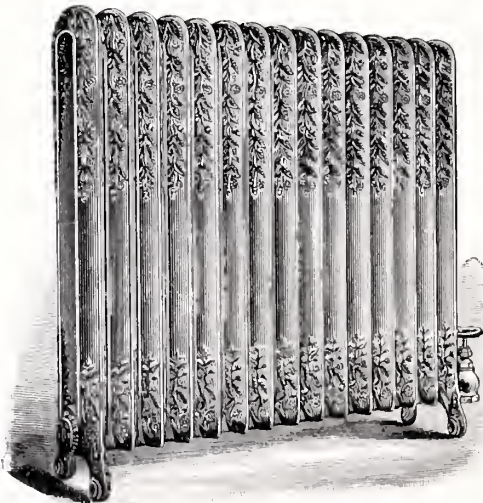


Fig. 515.

FOR STEAM AND HOT WATER.

HEIGHTS. . . . . 45, 38, 26, 23 and 20 Inches.  
Ideal can be furnished plain in Steam or Water. For list of sizes, see page 159.

## RADIATORS—CONTINUED.

## LIST OF SIZES FOR

## PERFECTION, NATIONAL, PEERLESS AND IDEAL RADIATORS.

No. of Sections.	Length for Ideal and Peerless Water Radiators, inches.	OPENINGS, WATER.		Length, *Perfection and National, Steam and Water, Peerless, Ideal and National, Steam, inches.	One Pipe Openings, Steam.	TWO PIPE OPENINGS, STEAM.		HEATING SURFACE, SQUARE FEET.					
		Supply.	Return.			Supply.	Return.	45 in. High.	38 in. High.	32 in. High.	26 in. High.	23 in. High.	20 in. High.
2	5½	1	1	5	1 X 0	1 X ¾	¾	10	8	6½	5½	4½	4
3	7½	1	1	7½	1 0	1 ¾	¾	15	12	10	8	7	6
4	10½	1	1	10	1 0	1 ¾	¾	20	16	13½	10½	9½	8
5	13½	1	1	12½	1 0	1 ¾	¾	25	20	16½	13½	11	10
6	15½	1	1	15	1½ X 0	1 ¾	¾	30	24	20	16	14	12
7	18½	1	1	17½	1½ 0	1 ¾	¾	35	28	23½	18½	16½	14
8	21	1	1	20	1½ 0	1 ¾	¾	40	32	26½	21½	18½	16
9	23½	1	1	22½	1½ 0	1 ¾	¾	45	36	30	24	21	18
10	26½	1	1	25	1½ 0	1 ¾	¾	50	40	33½	26½	23½	20
11	28½	1½	1½	27½	1½ 0	1½ X 1	¾	55	44	36½	29½	25½	22
12	31½	1½	1½	30	1½ 0	1½ 1	¾	60	48	40	32	28	24
13	34½	1½	1½	32½	1½ 0	1½ 1	¾	65	52	43½	34½	30½	26
14	36½	1½	1½	35	1½ 0	1½ 1	¾	70	56	46½	37½	32½	28
15	39½	1½	1½	37½	1½ 0	1½ 1	¾	75	60	50	40	35	30
16	42	1½	1½	40	1½ X 0	1½ 1	¾	80	64	53½	42½	37½	32
17	44½	1½	1½	42½	1½ 0	1½ 1	¾	85	68	56½	45½	39½	34
18	47½	1½	1½	45	1½ 0	1½ 1	¾	90	72	60	48	42	36
19	49½	1½	1½	47½	1½ 0	1½ 1	¾	95	76	63½	50½	44½	38
20	52½	1½	1½	50	1½ 0	1½ 1	¾	100	80	66½	53½	46½	40
21	55½	1½	1½	52½	1½ 0	1½ X 1½	¾	105	84	70	56	49	42
22	57½	1½	1½	55	1½ 0	1½ 1½	¾	110	88	73½	58½	51½	44
23	60½	1½	1½	57½	1½ 0	1½ 1½	¾	115	92	76½	61½	53½	46
24	63	1½	1½	60	1½ 0	1½ 1½	¾	120	96	80	64	56	48
25	65½	1½	1½	62½	1½ 0	1½ 1½	¾	125	100	83½	66½	58½	50
26	68½	1½	1½	65	2 X 0	1½ 1½	¾	130	104	86½	69½	60½	52
27	70½	1½	1½	67½	2 0	1½ 1½	¾	135	108	90	72	63	54
28	73½	1½	1½	70	2 0	1½ 1½	¾	140	112	93½	74½	65½	56
29	76½	1½	1½	72½	2 0	1½ 1½	¾	145	116	96½	77½	67½	58
30	78½	1½	1½	75	2 0	1½ 1½	¾	150	120	100	80	70	60
31	81½	1½	1½	77½	2 0	1½ 1½	¾	155	124	103½	82½	72½	62
32	84	1½	1½	80	2 0	1½ 1½	¾	160	128	106½	85½	74½	64

These Radiators will be tapped in accordance with the above list, and will have right-hand threads, unless otherwise ordered.

In estimating length of Radiator, allow ½ inch for each bushing.

Distance from centre of tapping to floor is about 4½ inches.

Each Perfection section is 7½ inches wide. Width of legs 9½ inches.

Each National, Peerless and Ideal section is 7½ inches wide. Width of legs 8½ inches.

Extra high legs are made for the National and Perfection. National and Perfection are made with supply and return openings at same end when required.

\* Perfection Steam Radiators, two pipe openings, 40 square feet and under, are tapped 1 x ¾ inch. Above 40, but not exceeding 56 square feet, 1½ x ¾ inches. Above 56 but not exceeding 100 square feet, 1½ x 1 inches. Above 100 square feet, 1½ x 1½ inches.

\* Perfection Water Radiators containing 40 square feet of radiation are tapped, flow and return, 1 inch. Above 40 but not exceeding 72 square feet, 1½ inches. Above 72 square feet, 1½ inches.

RADIATORS — CONTINUED.

DETROIT ORNAMENTAL FLUTED FOR STEAM AND HOT WATER.

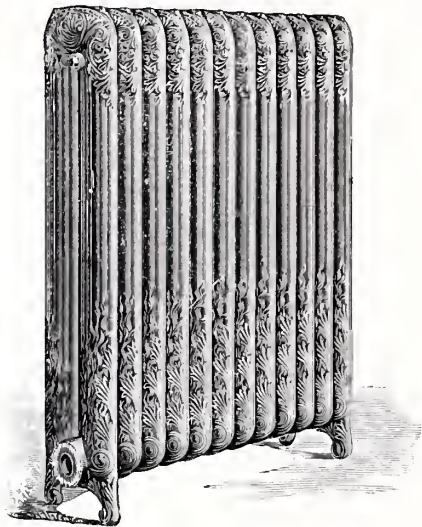


Fig. 516.

LIST OF SIZES FOR  
DETROIT ORNAMENTAL AND PLAIN FLUTED RADIATORS.

No. of Loops.	Length, Inches.	HEATING SURFACE. SQUARE FEET.						No. of Loops.	Length, Inches.	HEATING SURFACE. SQUARE FEET.					
		45 in. High, 5 1-4 Sq. Ft. per Loop.	38 in. High, 4 1-3 Sq. Ft. per Loop.	31 in. High, 3 1-2 Sq. Ft. per Loop.	25 in. High, 2 3-4 Sq. Ft. per Loop.	20 in. High, 2 1-4 Sq. Ft. per Loop.	45 in. High, 5 1-4 Sq. Ft. per Loop.			38 in. High, 4 1-3 Sq. Ft. per Loop.	31 in. High, 3 1-2 Sq. Ft. per Loop.	25 in. High, 2 3-4 Sq. Ft. per Loop.	20 in. High, 2 1-4 Sq. Ft. per Loop.		
2	48 <sup>5</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>8</sub>	7	5 <sup>1</sup> / <sub>2</sub>	4 <sup>1</sup> / <sub>2</sub>	18	41 <sup>5</sup> / <sub>8</sub>	94 <sup>1</sup> / <sub>2</sub>	78	63	49 <sup>1</sup> / <sub>2</sub>	40 <sup>1</sup> / <sub>2</sub>		
3	61 <sup>1</sup> / <sub>16</sub>	15 <sup>3</sup> / <sub>4</sub>	13	10 <sup>1</sup> / <sub>2</sub>	8 <sup>3</sup> / <sub>4</sub>	6 <sup>3</sup> / <sub>4</sub>	19	43 <sup>1</sup> / <sub>16</sub>	99 <sup>3</sup> / <sub>4</sub>	82 <sup>1</sup> / <sub>2</sub>	66 <sup>1</sup> / <sub>2</sub>	52 <sup>1</sup> / <sub>2</sub>	42 <sup>3</sup> / <sub>4</sub>		
4	94 <sup>1</sup> / <sub>16</sub>	21	17 <sup>1</sup> / <sub>8</sub>	14	11	9	20	46 <sup>1</sup> / <sub>16</sub>	105	86 <sup>3</sup> / <sub>8</sub>	70	55	45		
5	11 <sup>2</sup> / <sub>16</sub>	26 <sup>1</sup> / <sub>2</sub>	21 <sup>3</sup> / <sub>8</sub>	17 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>4</sub>	11 <sup>1</sup> / <sub>2</sub>	21	48 <sup>3</sup> / <sub>16</sub>	110 <sup>1</sup> / <sub>2</sub>	91	73 <sup>1</sup> / <sub>2</sub>	57 <sup>3</sup> / <sub>4</sub>	47 <sup>1</sup> / <sub>2</sub>		
6	13 <sup>3</sup> / <sub>16</sub>	31 <sup>1</sup> / <sub>2</sub>	26	21	16 <sup>1</sup> / <sub>2</sub>	13 <sup>1</sup> / <sub>2</sub>	22	50 <sup>1</sup> / <sub>16</sub>	115 <sup>1</sup> / <sub>2</sub>	95 <sup>1</sup> / <sub>2</sub>	77	60 <sup>1</sup> / <sub>2</sub>	49 <sup>1</sup> / <sub>2</sub>		
7	16 <sup>3</sup> / <sub>16</sub>	36 <sup>3</sup> / <sub>4</sub>	30 <sup>1</sup> / <sub>2</sub>	24 <sup>1</sup> / <sub>2</sub>	19 <sup>1</sup> / <sub>2</sub>	15 <sup>3</sup> / <sub>4</sub>	23	53 <sup>3</sup> / <sub>16</sub>	120 <sup>3</sup> / <sub>4</sub>	99 <sup>3</sup> / <sub>4</sub>	80 <sup>1</sup> / <sub>2</sub>	63 <sup>1</sup> / <sub>2</sub>	51 <sup>3</sup> / <sub>4</sub>		
8	18 <sup>1</sup> / <sub>16</sub>	42	34 <sup>1</sup> / <sub>8</sub>	28	22	18	24	55 <sup>1</sup> / <sub>16</sub>	126	104	84	66	54		
9	20 <sup>3</sup> / <sub>16</sub>	47 <sup>1</sup> / <sub>2</sub>	39	31 <sup>1</sup> / <sub>2</sub>	24 <sup>3</sup> / <sub>4</sub>	20 <sup>1</sup> / <sub>2</sub>	25	57 <sup>1</sup> / <sub>16</sub>	131 <sup>1</sup> / <sub>2</sub>	108 <sup>1</sup> / <sub>2</sub>	87 <sup>1</sup> / <sub>2</sub>	68 <sup>3</sup> / <sub>4</sub>	56 <sup>1</sup> / <sub>2</sub>		
10	23 <sup>1</sup> / <sub>16</sub>	52 <sup>3</sup> / <sub>4</sub>	43 <sup>1</sup> / <sub>2</sub>	35	27 <sup>1</sup> / <sub>2</sub>	22 <sup>1</sup> / <sub>2</sub>	26	60 <sup>1</sup> / <sub>16</sub>	136 <sup>1</sup> / <sub>2</sub>	112 <sup>3</sup> / <sub>8</sub>	91	71 <sup>1</sup> / <sub>2</sub>	58 <sup>1</sup> / <sub>2</sub>		
11	25 <sup>7</sup> / <sub>16</sub>	57 <sup>3</sup> / <sub>4</sub>	47 <sup>3</sup> / <sub>8</sub>	38 <sup>1</sup> / <sub>2</sub>	30 <sup>1</sup> / <sub>2</sub>	24 <sup>3</sup> / <sub>8</sub>	27	62 <sup>7</sup> / <sub>16</sub>	141 <sup>3</sup> / <sub>8</sub>	117	94 <sup>1</sup> / <sub>2</sub>	74 <sup>1</sup> / <sub>2</sub>	60 <sup>3</sup> / <sub>4</sub>		
12	27 <sup>3</sup> / <sub>16</sub>	63	52	42	33	27	28	64 <sup>3</sup> / <sub>16</sub>	147	121 <sup>1</sup> / <sub>2</sub>	98	77	63		
13	30 <sup>1</sup> / <sub>16</sub>	68 <sup>1</sup> / <sub>2</sub>	56 <sup>1</sup> / <sub>2</sub>	45 <sup>1</sup> / <sub>2</sub>	35 <sup>3</sup> / <sub>4</sub>	29 <sup>1</sup> / <sub>2</sub>	29	67 <sup>1</sup> / <sub>16</sub>	152 <sup>1</sup> / <sub>2</sub>	125 <sup>3</sup> / <sub>8</sub>	101 <sup>1</sup> / <sub>2</sub>	79 <sup>3</sup> / <sub>4</sub>	65 <sup>1</sup> / <sub>2</sub>		
14	32 <sup>3</sup> / <sub>16</sub>	73 <sup>1</sup> / <sub>2</sub>	60 <sup>3</sup> / <sub>8</sub>	49	38 <sup>1</sup> / <sub>2</sub>	31 <sup>1</sup> / <sub>2</sub>	30	69 <sup>3</sup> / <sub>16</sub>	157 <sup>1</sup> / <sub>2</sub>	130	105	82 <sup>1</sup> / <sub>2</sub>	67 <sup>1</sup> / <sub>2</sub>		
15	34 <sup>1</sup> / <sub>16</sub>	78 <sup>3</sup> / <sub>4</sub>	65	52 <sup>1</sup> / <sub>2</sub>	41 <sup>1</sup> / <sub>2</sub>	33 <sup>3</sup> / <sub>8</sub>	31	71 <sup>1</sup> / <sub>16</sub>	162 <sup>3</sup> / <sub>4</sub>	134 <sup>1</sup> / <sub>2</sub>	108 <sup>1</sup> / <sub>2</sub>	85 <sup>1</sup> / <sub>2</sub>	69 <sup>3</sup> / <sub>4</sub>		
16	37	84	69 <sup>1</sup> / <sub>2</sub>	56	44	36	32	74	168	138 <sup>3</sup> / <sub>8</sub>	112	88	72		
17	39 <sup>5</sup> / <sub>16</sub>	89 <sup>1</sup> / <sub>2</sub>	73 <sup>3</sup> / <sub>8</sub>	59 <sup>1</sup> / <sub>2</sub>	46 <sup>3</sup> / <sub>4</sub>	38 <sup>1</sup> / <sub>2</sub>	..	..	..	..	..	..	..		

Can be furnished plain fluted.  
Each section is 8 inches wide. Width of legs, 8<sup>1</sup>/<sub>2</sub> inches.  
Unless otherwise ordered, these Radiators will be tapped right-hand.  
In estimating length of Radiator, allow <sup>1</sup>/<sub>2</sub> inch for each bushing.



## RADIATORS—CONTINUED.

### TAPPINGS FOR DETROIT ORNAMENTAL FLUTED AND PLAIN FLUTED RADIATORS.

#### STEAM.

ONE PIPE WORK.		TWO PIPE WORK.	
Less than 28 square feet . . . . .	. 1 inch.	Less than 28 square feet . . . . .	$\frac{3}{4}$ x $\frac{3}{4}$ inch.
From 28 to 52 " " . . . . .	. $1\frac{1}{4}$ "	From 28 to 52 " " . . . . .	1 x $\frac{3}{4}$ "
" 52 " 91 " " . . . . .	. $1\frac{1}{2}$ "	" 52 " 104 " " . . . . .	$1\frac{1}{4}$ x 1 "
" 91 " 168 " " . . . . .	. 2 "	" 104 " 168 " " . . . . .	$1\frac{1}{2}$ x $1\frac{1}{4}$ "

#### HOT WATER.

TAPPED FOR SUPPLY AND RETURN.		For One Pipe Work, and the Drip End for Two Pipe Work, Centre of Opening is as follows:	
Less than 42 square feet . . . . .	. 1 inch.	$\frac{3}{4}$ inch . . . . .	$3\frac{1}{2}$ inches from floor.
From 42 to 70 " " . . . . .	. $1\frac{1}{4}$ "	1 " . . . . .	$3\frac{3}{4}$ " " "
" 70 " 130 " " . . . . .	. $1\frac{1}{2}$ "	$1\frac{1}{4}$ " . . . . .	$3\frac{3}{4}$ " " "
" 130 " 168 " " . . . . .	. 2 "	$1\frac{1}{2}$ " . . . . .	$3\frac{5}{8}$ " " "
For Two Pipe Work, Supply Opening is Tapped at Centre of Hub, $4\frac{1}{2}$ inches from the floor.		2 " . . . . .	$4\frac{1}{2}$ " " "
		Width of Radiators across the feet, $8\frac{1}{2}$ inches.	

#### NATIONAL DIRECT-INDIRECT RADIATOR.

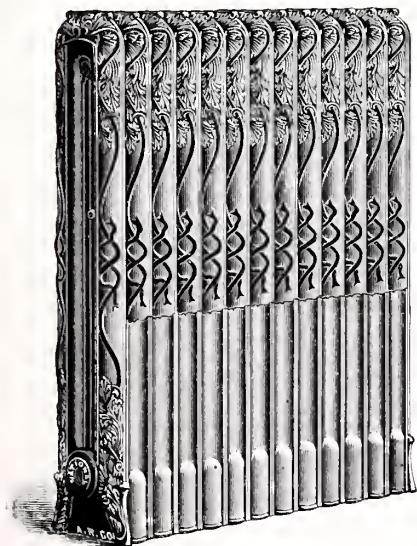


Fig. 517.

#### STAIRWAY RADIATOR—FOR STEAM ONLY.

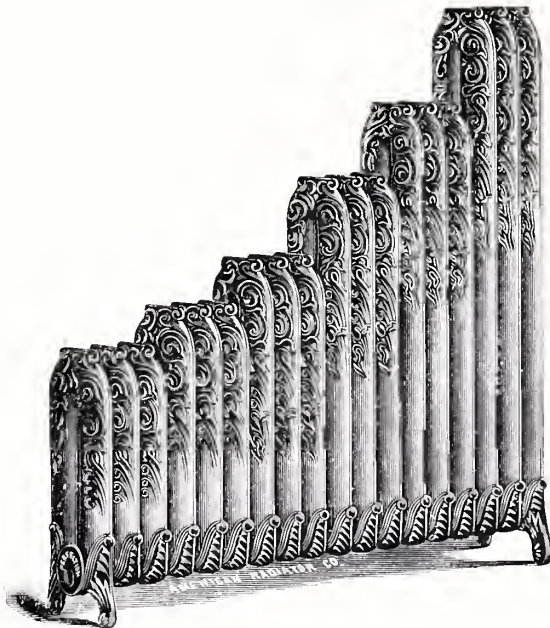


Fig. 518.

Stairway Radiators made in Detroit, Ideal, National and Perfection patterns. See different patterns for sizes. Made to suit any desired pitch.

Direct-Indirect also made in Detroit, Ideal and Perfection patterns.



RADIATORS—CONTINUED.

DETROIT DINING-ROOM RADIATOR. FOR STEAM AND HOT WATER.



Fig. 519.

No.	Length, Inches.	Heating Surface, Square Feet.	Price, Steam.	Price, Water.
1	30 <sup>1</sup> / <sub>6</sub>	33 <sup>1</sup> / <sub>2</sub>	\$42.00	48.00
2	34 <sup>1</sup> / <sub>6</sub>	42	46.00	52.50
3	39 <sup>3</sup> / <sub>6</sub>	50 <sup>3</sup> / <sub>4</sub>	50.00	57.00
4	43 <sup>5</sup> / <sub>6</sub>	59 <sup>1</sup> / <sub>2</sub>	54.00	61.50
5	48 <sup>9</sup> / <sub>6</sub>	68	58.00	66.00
6	53 <sup>3</sup> / <sub>6</sub>	76 <sup>3</sup> / <sub>4</sub>	62.00	70.50
7	57 <sup>5</sup> / <sub>6</sub>	85 <sup>1</sup> / <sub>2</sub>	66.00	75.00
8	62 <sup>7</sup> / <sub>6</sub>	94	70.00	79.50
9	67 <sup>1</sup> / <sub>6</sub>	102 <sup>3</sup> / <sub>4</sub>	74.00	84.00
10	71 <sup>3</sup> / <sub>6</sub>	111 <sup>1</sup> / <sub>2</sub>	78.00	88.50

In both Ornamental and Plain Patterns.

For Tapping, see page 160.

Write for Discount.

PERFECTION DINING-ROOM RADIATOR. FOR STEAM AND HOT WATER.

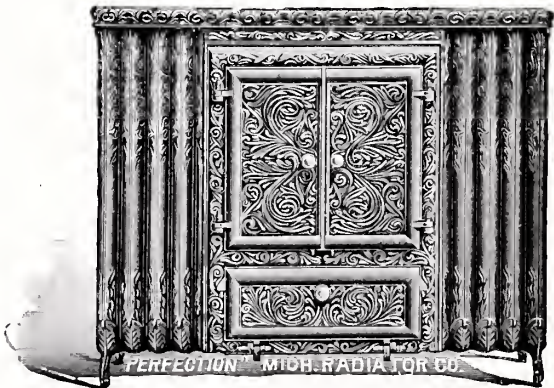


Fig. 520.

NUMBER . . . . .	1	2	3	4	5	6	7
Length, Inches . . . . .	35	40	45	50	55	60	65
Square Feet . . . . .	29	37	45	53	61	69	77
Price . . . . .	\$48.00	53.00	58.00	63.00	68.00	73.00	78.00

# RADIATORS—CONTINUED.

NATIONAL SINGLE COLUMN.



Fig. 521.

PLAIN EXCELSIOR.

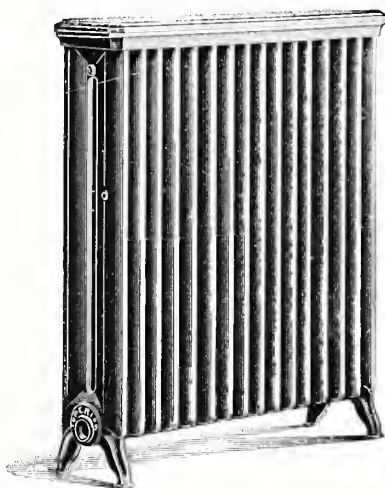


Fig. 522.

## PLAIN EXCELSIOR RADIATORS.

No extra charge for Tops. For sizes in Steam only, see page 159. Heights, 38, 31, 25, 22, 19 inches. Width of each section,  $7\frac{1}{2}$  inches. Length per section, 2 inches. Width of leg,  $8\frac{1}{2}$  inches.

## NATIONAL SINGLE COLUMN DIRECT STEAM AND WATER RADIATORS.

No. of Sections.	Length, Inches.	One Pipe Openings	TWO PIPE OPENINGS		HEATING SURFACE, SQUARE FEET.					No. of Sections.	Length, Inches.	One Pipe Openings.	TWO PIPE OPENINGS		HEATING SURFACE, SQUARE FEET.				
			Supply.	Return.	38 in. High.	32 in. High.	26 in. High.	23 in. High.	20 in. High.				Supply.	Return.	38 in. High.	32 in. High.	26 in. High.	23 in. High.	20 in. High.
2	5	1 X 0	1	X	$\frac{3}{4}$	6	5	4	$3\frac{1}{8}$	2	18	45	$1\frac{1}{2}$ X 0	$1\frac{1}{2}$ X 1	54	45	36	30	24
3	$7\frac{1}{2}$	1 0 1	1	0	$\frac{3}{4}$	9	$7\frac{1}{2}$	6	5	4	19	$47\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	57	$47\frac{1}{2}$	38	$31\frac{1}{2}$	$25\frac{1}{2}$
4	10	1 0 1	1	0	$\frac{3}{4}$	12	10	8	$6\frac{3}{8}$	$5\frac{1}{2}$	20	50	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	60	50	40	$33\frac{1}{2}$	$26\frac{3}{4}$
5	$12\frac{1}{2}$	1 0 1	1	0	$\frac{3}{4}$	15	$12\frac{1}{2}$	10	$8\frac{1}{8}$	6	21	$52\frac{1}{2}$	$1\frac{1}{2}$ X 0	$1\frac{1}{2}$ 1	63	$52\frac{1}{2}$	42	35	28
6	15	1 0 1	1	0	$\frac{3}{4}$	18	15	12	10	8	22	55	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	66	55	44	$36\frac{3}{4}$	$29\frac{1}{4}$
7	$17\frac{1}{2}$	1 0 1	1	0	$\frac{3}{4}$	21	$17\frac{1}{2}$	14	$11\frac{3}{8}$	$9\frac{1}{8}$	23	$57\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	69	$57\frac{1}{2}$	46	$38\frac{1}{2}$	$30\frac{3}{4}$
8	20	$1\frac{1}{2}$ X 0	1	0	$\frac{3}{4}$	24	20	16	$13\frac{1}{8}$	$10\frac{3}{8}$	24	60	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	72	60	48	40	32
9	$22\frac{1}{2}$	$1\frac{1}{2}$ 0	1	0	$\frac{3}{4}$	27	$22\frac{1}{2}$	18	15	12	25	$62\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	75	$62\frac{1}{2}$	50	$41\frac{3}{4}$	$33\frac{1}{4}$
10	25	$1\frac{1}{2}$ 0	1	0	$\frac{3}{4}$	30	25	20	$16\frac{3}{8}$	$13\frac{1}{4}$	26	65	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ X $1\frac{1}{2}$	78	65	52	$43\frac{1}{4}$	$34\frac{3}{4}$
11	$27\frac{1}{2}$	$1\frac{1}{2}$ 0	1	0	$\frac{3}{4}$	33	$27\frac{1}{2}$	22	$18\frac{3}{8}$	$14\frac{3}{8}$	27	$67\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ $1\frac{1}{2}$	81	$67\frac{1}{2}$	54	45	36
12	30	$1\frac{1}{2}$ 0	1	0	$\frac{3}{4}$	36	30	24	20	16	28	70	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ $1\frac{1}{2}$	84	70	56	$46\frac{3}{4}$	$37\frac{1}{4}$
13	$32\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ X 1	1	$\frac{3}{4}$	39	$32\frac{1}{2}$	26	$21\frac{3}{8}$	$17\frac{1}{8}$	29	$72\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ $1\frac{1}{2}$	87	$72\frac{1}{2}$	58	$48\frac{1}{4}$	$38\frac{3}{4}$
14	35	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	1	$\frac{3}{4}$	42	35	28	$23\frac{1}{8}$	$18\frac{3}{8}$	30	75	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ $1\frac{1}{2}$	90	75	60	50	40
15	$37\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	1	$\frac{3}{4}$	45	$37\frac{1}{2}$	30	25	20	31	$77\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ $1\frac{1}{2}$	93	$77\frac{1}{2}$	62	$51\frac{3}{4}$	$41\frac{1}{4}$
16	40	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	1	$\frac{3}{4}$	48	40	32	$26\frac{3}{8}$	$21\frac{1}{4}$	32	80	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ $1\frac{1}{2}$	96	80	64	$53\frac{1}{4}$	$42\frac{3}{4}$
17	$42\frac{1}{2}$	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1	1	$\frac{3}{4}$	51	$42\frac{1}{2}$	34	$28\frac{3}{8}$	$22\frac{3}{8}$	.	.	.	.	.	.	.	.	.

Each section is  $4\frac{1}{2}$  inches wide. Width of legs,  $5\frac{1}{2}$  inches. Radiators will be tapped in accordance with above list, unless otherwise ordered. All openings will have right-hand threads, unless ordered otherwise. Height from floor to centre of opening is about  $4\frac{1}{2}$  inches.

For Hot Water National Single Column Radiators the floor and return openings are tapped as follows:

Radiators containing 36 square feet and under . . . . .  $\frac{3}{4}$  inch.

Above 36, but not exceeding 75 square feet. . . . . 1 "

Above 75 square feet. . . . .  $1\frac{1}{4}$  "

In estimating length of Radiator, allow  $\frac{1}{2}$  inch for each bushing.

RADIATORS — CONTINUED.

PERFECTION CIRCULAR OR COLUMN RADIATOR.

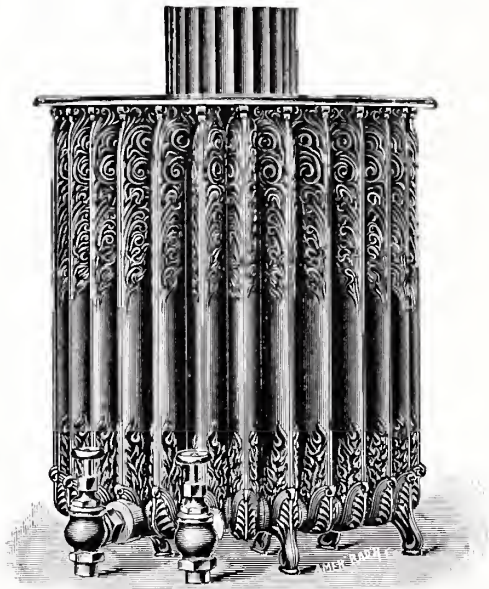


Fig. 523.

LIST OF SIZES  
PERFECTION CIRCULAR OR COLUMN  
RADIATORS.  
FOR STEAM OR HOT WATER.

No. Sections.	Outside Diameter at Legs. Inches.	Inside Diameter at Legs. Inches.
16	25½	6½
18	27	8
20	28½	9½
24	32	13
26	32½	13½
28	33½	14½
30	33½	14½
34	38	19 ⅜
40	41½	22½
44	43½	24½
60	55	36

For Dimensions of Sections, see pages 158 and 159.

HEIGHTS . . . 45, 38, 32, 26, 23 and 20 Inches, in Steam ; 45, 38, 32, 26 and 20 Inches, in Hot Water.

LIST OF SIZES  
IDEAL CIRCULAR OR COLUMN  
RADIATORS.

FOR STEAM OR HOT WATER.

STEAM.			WATER.		
No. of Sections	Outside Diameter at Leg.	Inside Diameter at Leg.	No. of Sections	Outside Diameter at Leg.	Inside Diameter at Leg.
16	22¾	5¼	16	26	9
20	25½	8½	20	29½	12½
24	28¾	11¼	24	33	16
25	28¾	11¼	25	33¼	16¼
28	31	14	28	36½	19½
30	32¼	15¼	30	38¼	21¼
33	34¼	17¾	33	40¼	23¼
36	36¼	19¾	36	43¼	26¼

For Dimensions of Sections, see pages 158 and 159.

IDEAL CIRCULAR OR COLUMN.

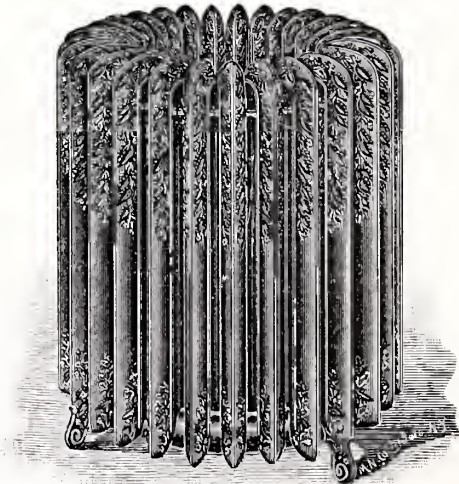


Fig. 524.

HEIGHTS . . . 45, 38, 32, 26, 23 and 20 Inches.



# RADIATORS—CONTINUED.

## DETROIT ORNAMENTAL FLUTED CIRCULAR OR COLUMN RADIATORS.

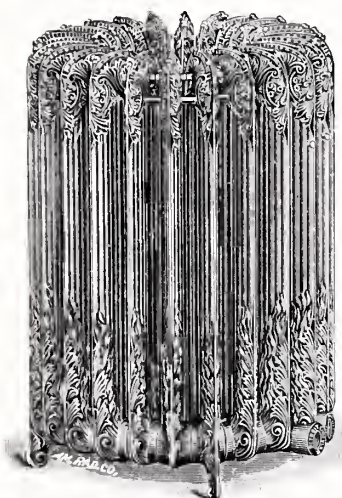


Fig. 525.

No. Sections.	Outside Diameter at Legs. Inches.	Inside Diameter at Legs. Inches.
12	20 $\frac{3}{4}$	14 $\frac{1}{2}$
14	22	16
16	24	18
18	25	19
20	26	20
22	27	21
24	28	22
26	29	23
28	30	24
30	32 $\frac{1}{2}$	26 $\frac{1}{2}$
32	33	27
34	34	28
36	37	31
46	42 $\frac{1}{2}$	36 $\frac{1}{2}$

Heights, 45, 38, 31, 25 and 20 Inches.

For Dimensions of Sections see page 160.

### CORNER RADIATOR.

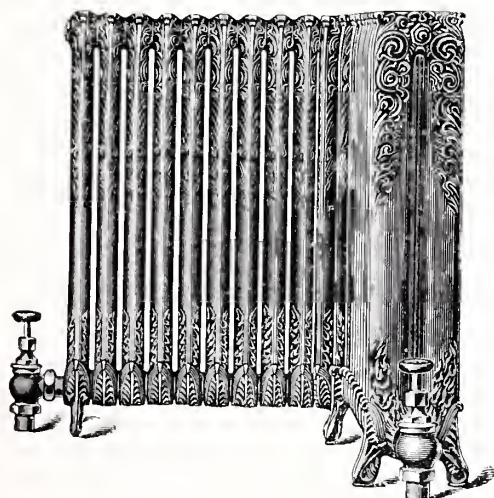


Fig. 526.

### WINDOW RADIATOR.

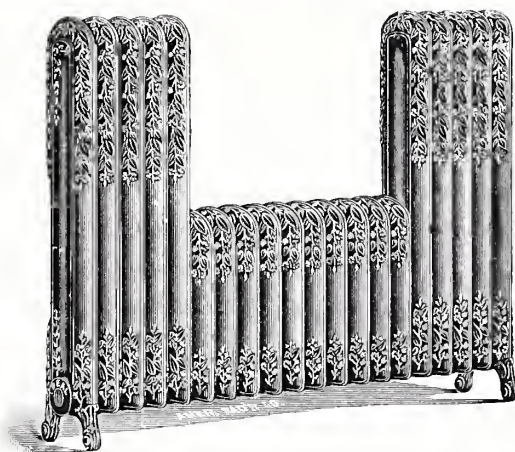


Fig. 527.

### CURVED RADIATOR.

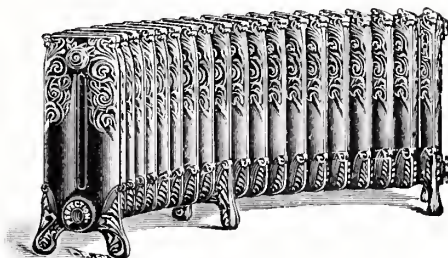


Fig. 528.

Circular, Corner, Window and Curved Radiators made for steam and hot water, in all heights and to suit the requirements of any angle, window or curve, in the Detroit, Ideal, National and Perfection patterns. National pattern in steam only. See list of different patterns for sizes.



RADIATORS—CONTINUED.

NATIONAL FOUR COLUMN DIRECT WATER RADIATOR.

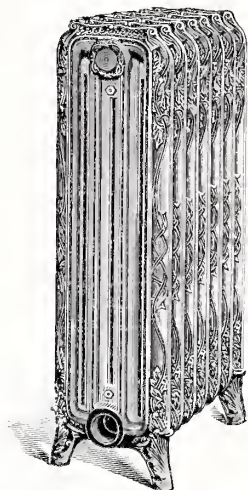


Fig. 529.

LIST OF SIZES

NATIONAL FOUR COLUMN DIRECT WATER RADIATORS.

Number of Sections.	Length. Inches.	HEATING SURFACE. SQUARE FEET.		Number of Sections.	Length. Inches.	HEATING SURFACE. SQUARE FEET.	
		38 Inches High.	26 Inches High.			38 Inches High.	26 Inches High.
2	5	16	10 <sup>2</sup> / <sub>8</sub>	14	35	112	74 <sup>2</sup> / <sub>8</sub>
3	7 <sup>1</sup> / <sub>2</sub>	24	16	15	37 <sup>1</sup> / <sub>2</sub>	120	80
4	10	32	21 <sup>1</sup> / <sub>8</sub>	16	40	128	85 <sup>1</sup> / <sub>8</sub>
5	12 <sup>1</sup> / <sub>2</sub>	40	26 <sup>2</sup> / <sub>8</sub>	17	42 <sup>1</sup> / <sub>2</sub>	136	90 <sup>2</sup> / <sub>8</sub>
6	15	48	32	18	45	144	96
7	17 <sup>1</sup> / <sub>2</sub>	56	37 <sup>1</sup> / <sub>8</sub>	19	47 <sup>1</sup> / <sub>2</sub>	152	101 <sup>1</sup> / <sub>8</sub>
8	20	64	42 <sup>2</sup> / <sub>8</sub>	20	50	160	106 <sup>2</sup> / <sub>8</sub>
9	22 <sup>1</sup> / <sub>2</sub>	72	48	21	52 <sup>1</sup> / <sub>2</sub>	168	112
10	25	80	53 <sup>1</sup> / <sub>8</sub>	22	55	176	117 <sup>1</sup> / <sub>8</sub>
11	27 <sup>1</sup> / <sub>2</sub>	88	58 <sup>2</sup> / <sub>8</sub>	23	57 <sup>1</sup> / <sub>2</sub>	184	122 <sup>2</sup> / <sub>8</sub>
12	30	96	64	24	60	192	128
13	32 <sup>1</sup> / <sub>2</sub>	104	69 <sup>1</sup> / <sub>8</sub>	25	62 <sup>1</sup> / <sub>2</sub>	200	133 <sup>1</sup> / <sub>8</sub>

THE FLOW AND RETURN OPENINGS ARE TAPPED AS FOLLOWS :

Radiators containing 40 square feet and under . . . . .	1	inch.
Above 40, but not exceeding 72 square feet . . . . .	1 <sup>1</sup> / <sub>4</sub>	"
" 72, " " 128 " " . . . . .	1 <sup>1</sup> / <sub>2</sub>	"
" 128 square feet . . . . .	2	"

Each section is 10<sup>1</sup>/<sub>2</sub> inches wide ; width of legs, 11<sup>1</sup>/<sub>4</sub> inches.  
Distance from centre of tapping to floor, about 4<sup>1</sup>/<sub>2</sub> inches.

RADIATORS—CONTINUED.

PERFECTION FLUE RADIATOR. FOR STEAM AND HOT WATER.

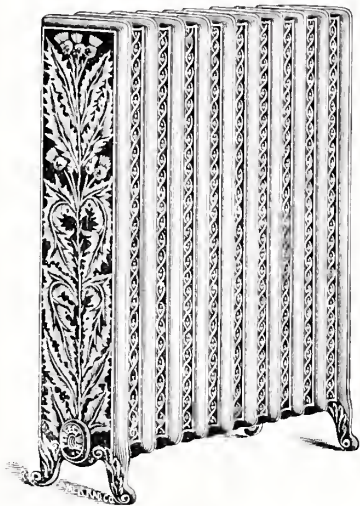


Fig. 530.

LIST OF SIZES FOR STEAM.

No. of Sections.	Length, Inches.	One Pipe Openings.	Two PIPE OPENINGS.		HEATING SURFACE, SQUARE FEET.				
			Supply.	Return.	38 in. High.	32 in. High.	26 in. High.	23 in. High.	16, 15 and 14 in. High.
2	6	1 X 0	1 X $\frac{3}{4}$		19	16	12	10	$6\frac{2}{3}$
3	9	$1\frac{1}{4}$ X 0	1 $\frac{3}{4}$		$28\frac{1}{2}$	24	18	15	10
4	12	$1\frac{1}{4}$ 0	1 $\frac{3}{4}$		38	32	24	20	$13\frac{1}{3}$
5	15	$1\frac{1}{4}$ 0	$1\frac{1}{4}$ X $\frac{3}{4}$		$47\frac{1}{2}$	40	30	25	$16\frac{2}{3}$
6	18	$1\frac{1}{4}$ 0	$1\frac{1}{4}$	$\frac{3}{4}$	57	48	36	30	20
7	21	$1\frac{1}{2}$ X 0	$1\frac{1}{4}$ X 1		$66\frac{1}{2}$	56	42	35	$23\frac{1}{3}$
8	24	$1\frac{1}{2}$ 0	$1\frac{1}{4}$ 1		76	64	48	40	$26\frac{2}{3}$
9	27	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ X 1		$85\frac{1}{2}$	72	54	45	30
10	30	$1\frac{1}{2}$ 0	$1\frac{1}{2}$ 1		95	80	60	50	$33\frac{1}{3}$
11	33	2 0	$1\frac{1}{2}$ X $1\frac{1}{4}$		$104\frac{1}{2}$	88	66	55	$36\frac{2}{3}$
12	36	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		114	96	72	60	40
13	39	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		$123\frac{1}{2}$	104	78	65	$43\frac{1}{3}$
14	42	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		133	112	84	70	$46\frac{2}{3}$
15	45	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		$142\frac{1}{2}$	120	90	75	50
16	48	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		152	128	96	80	$53\frac{1}{3}$
17	51	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		$161\frac{1}{2}$	136	102	85	$56\frac{2}{3}$
18	54	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		171	144	108	90	60
19	57	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		$180\frac{1}{2}$	152	114	95	$63\frac{1}{3}$
20	60	2 0	$1\frac{1}{2}$ $1\frac{1}{4}$		190	160	120	100	$66\frac{2}{3}$

The heights and capacities of the Perfection Flue Radiators for Hot Water are the same as in the Steam Radiators. The flow and return openings are as follows:  
Radiators containing 40 square feet and under . . . . . 1 inch.  
Above 40, but not exceeding 72 square feet. . . . .  $1\frac{1}{4}$  "  
Above 72 square feet. . . . .  $1\frac{1}{2}$  "  
Each section is  $10\frac{1}{2}$  inches wide. Width of legs,  $11\frac{3}{8}$  inches. Distance from centre of tapping to floor is about  $4\frac{1}{2}$  inches for both Steam and Water. In estimating length of Radiator, add for bushings, one-half inch for Single, and one inch for Double Tapping.

## RADIATORS—CONTINUED.

### EXCELSIOR INDIRECT STEAM RADIATORS.

COMPLETE STACK.

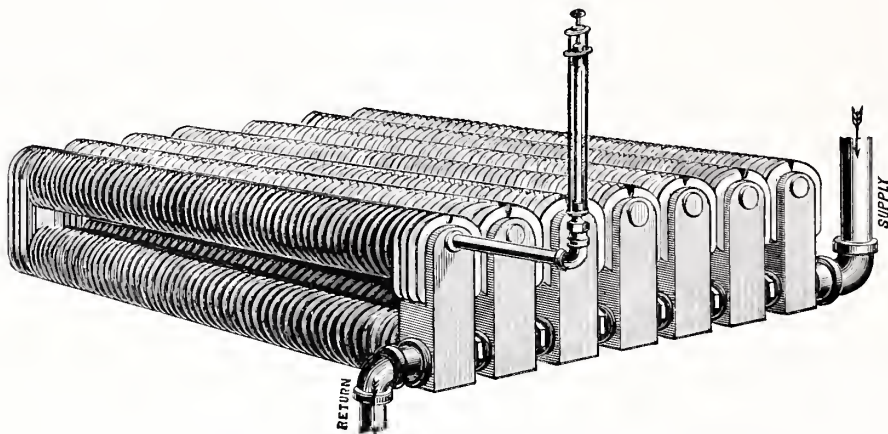


Fig. 531.

Length of Section, 3 Feet.

Height,  $7\frac{1}{2}$  Inches.

Width occupied in Stack,  $3\frac{1}{2}$  Inches.

Each Section contains 12 square feet of Radiating Surface.

### PERFECTION PIN INDIRECT RADIATORS.

FOR STEAM OR HOT WATER.

STANDARD.

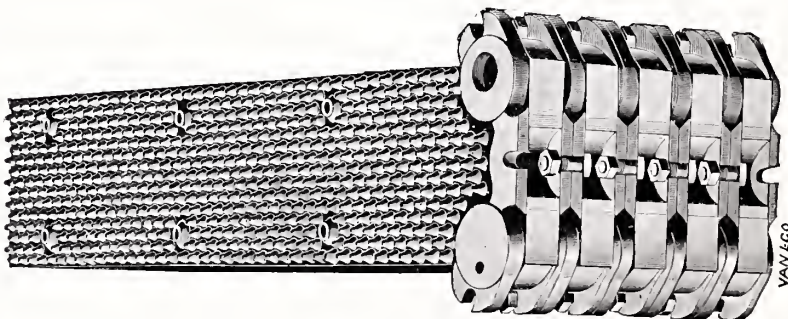


Fig. 532.

10 Square Feet Surface.

Length, 36 Inches.

Width,  $7\frac{1}{2}$  Inches.

Width at Connecting Point,  $11\frac{1}{2}$  Inches.

EXTRA LARGE.

15 Square Feet Surface.

Length, 36 Inches.

Width,  $11\frac{1}{2}$  Inches.

Width at Connecting Point,  $15\frac{1}{2}$  Inches.



# RADIATORS—CONTINUED.

UNION RADIATOR.

UNION RADIATOR—ORNAMENTAL BASE.

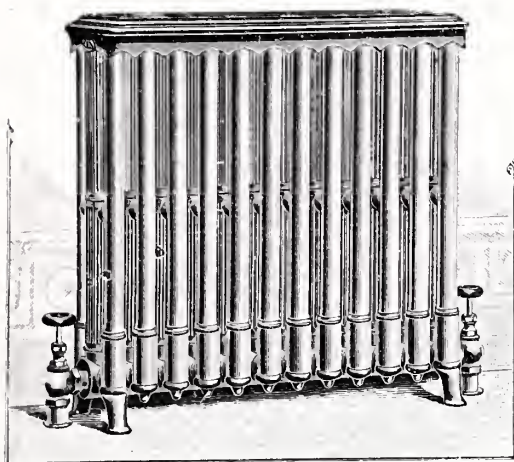


Fig. 533.

FOR STEAM OR WATER.

Total width . . . . .	9 $\frac{1}{2}$ inches.
Length per section . . . . .	3 "
37 inches high has	4 $\frac{1}{2}$ square feet per section.
33 " " " 4 " " " "	" " " "
29 " " " 3 $\frac{1}{2}$ " " " "	" " " "
25 " " " 3 " " " "	" " " "
21 " " " 2 $\frac{1}{2}$ " " " "	" " " "
17 " " " 2 " " " "	" " " "

ROYAL UNION RADIATOR.

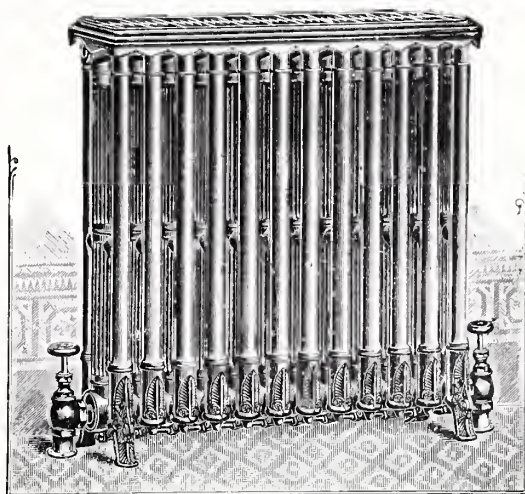


Fig. 534.

FOR STEAM OR WATER.

Total width . . . . .	11 inches.
Length per section . . . . .	3 "
37 inches high has	4 $\frac{1}{2}$ square feet per section.
33 " " " 4 " " " "	" " " "
29 " " " 3 $\frac{1}{2}$ " " " "	" " " "
25 " " " 3 " " " "	" " " "
21 " " " 2 $\frac{1}{2}$ " " " "	" " " "
17 " " " 2 " " " "	" " " "

IMPERIAL UNION RADIATOR.

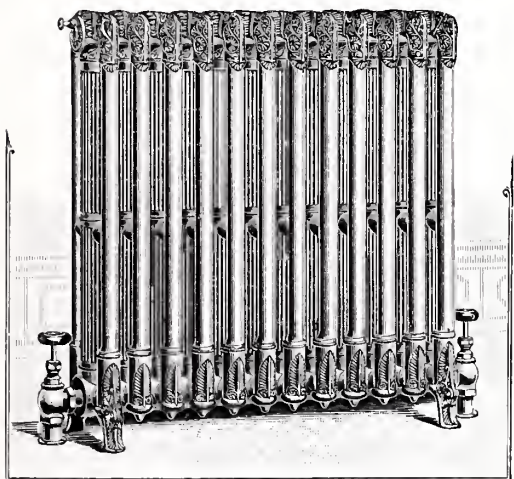


Fig. 535.

FOR STEAM OR WATER.

Total width . . . . .	11 inches.
Length per section . . . . .	3 "
37 inches high has	4 $\frac{1}{2}$ square feet per section.
33 " " " 4 " " " "	" " " "
29 " " " 3 $\frac{1}{2}$ " " " "	" " " "
25 " " " 3 " " " "	" " " "
21 " " " 2 $\frac{1}{2}$ " " " "	" " " "
17 " " " 2 " " " "	" " " "

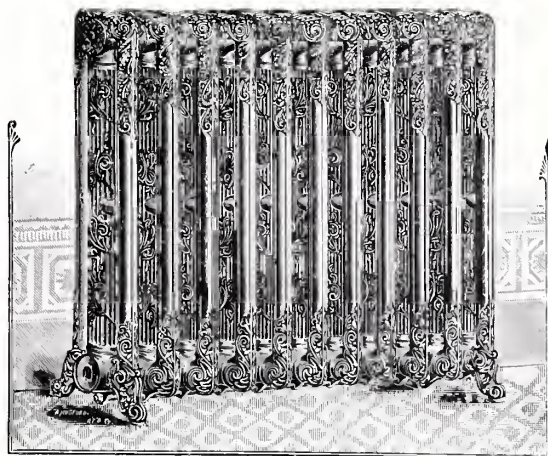


Fig. 536.

FOR STEAM OR WATER.

Total width . . . . .	11 inches.
Length per section . . . . .	3 $\frac{1}{4}$ "
37 inches high has	6 $\frac{1}{2}$ square feet per section.
31 " " " 5 $\frac{1}{2}$ " " " "	" " " "
25 " " " 4 $\frac{1}{2}$ " " " "	" " " "
19 " " " 3 $\frac{1}{2}$ " " " "	" " " "



RADIATORS—CONTINUED.

CHAMPION UNION RADIATOR.  
FOR STEAM OR WATER.

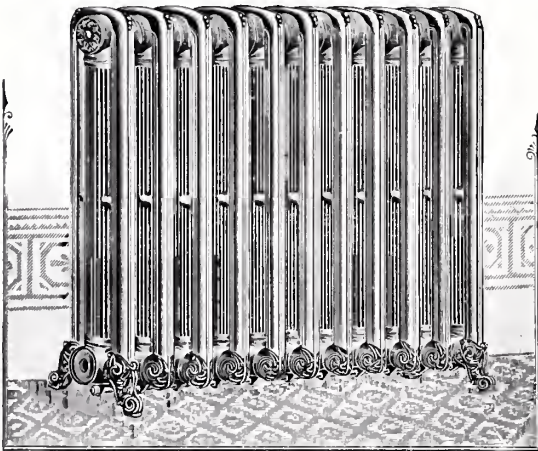


Fig. 537.

Total Width, 11 Inches.

CHAMPION UNION RADIATOR—CURTAIN  
BASE. FOR STEAM OR WATER.

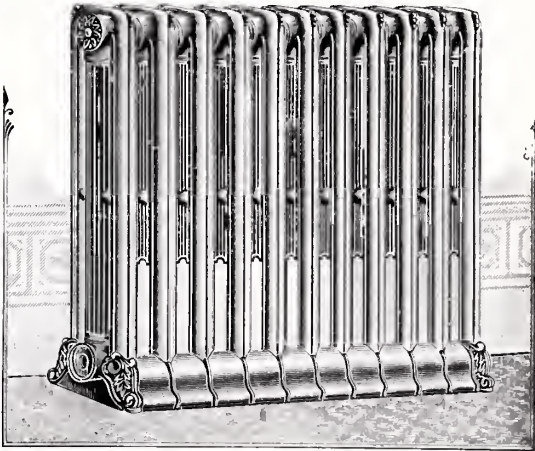


Fig. 538.

Length per Section, 3½ Inches.

45 inches high has 8 square feet per section.			
37	"	"	6½
31	"	"	5½
25	"	"	4½
19	"	"	3½

SCHEDULE OF PRICES.

37 inches high, price per square foot, (base price)	deduct ½ cent per foot from base price.	cents.
45 " " "	add 2 cents per foot to	" "
33 " " "	" 3 " " " "	" "
31 " " "	" 4 " " " "	" "
29 " " "	" 6 " " " "	" "
25 " " "	" 10 " " " "	" "
21 " " "	" 12 " " " "	" "
19 " " "	" 15 " " " "	" "
17 " " "		

REGULAR TAPPING.

STEAM.

TWO PIPE WORK.

All Radiators of 50 square feet and smaller	1 x ¾ inch, R. H.
" " larger than 50 square feet	1½ x 1 " " "
Air Valve	½ " " "

ONE PIPE WORK.

All Radiators of 30 square feet and smaller	1 inch, R. H.
" " larger than 30 square feet and smaller than 60 feet	1½ " " "
" " " 60 square feet	1½ " " "
Air Valve	½ " " "

Radiators will be tapped for Two (2) Pipe Work unless otherwise specified.

WATER.

All Radiators of 50 square feet and smaller	1 x 1 inch, R. H.
" " larger than 50 square feet	1½ x 1½ " " "
*Air Valve	½ inch at top " " "

If Radiators are required to be tapped top and bottom same end, please so specify on order.  
\*If the Water Radiator is to be used for Steam Warming, the Air Valve must be placed at the return end of the Radiator and near the bottom.

## RADIATORS—CONTINUED.

THE EXETER ORNAMENTAL RADIATOR.  
FOR STEAM AND HOT WATER.

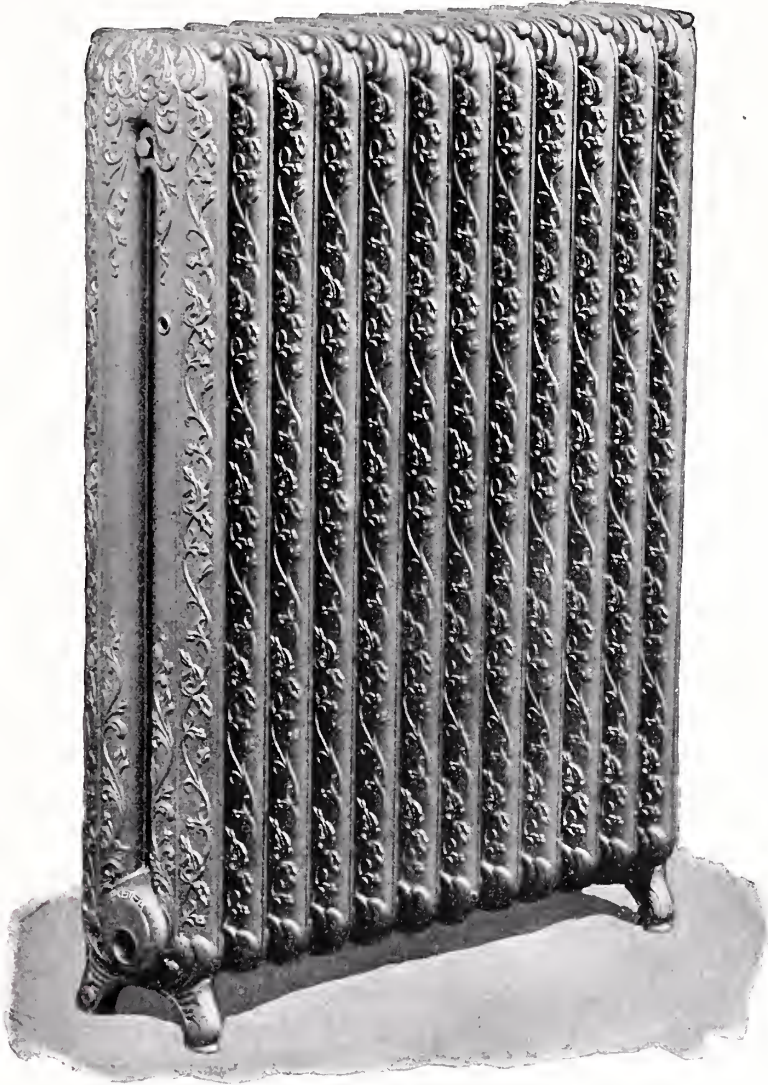


Fig. 539.

The standard height of this Radiator is 37 inches, and each section contains  $4\frac{1}{4}$  square feet heating surface.

Other heights, 45, 31, 25 and 20 inches, are  $7\frac{1}{2}$  inches wide and length may be estimated by allowing  $2\frac{5}{16}$  inches to a section.

Also made plain with Screen Top and in other patterns.

## RADIATORS—CONTINUED.

### GOLD INDIRECT PIN RADIATORS FOR STEAM OR WATER.

REGULAR PATTERN.  
HEAD AND DRAIN SECTION.

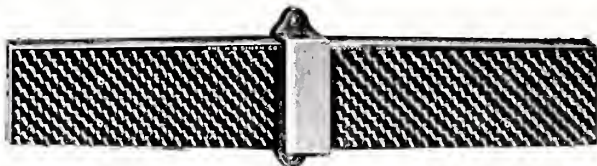


Fig. 540.

INTERMEDIATE SECTION.



Fig. 541.

TEN-INCH DRUM PATTERN.  
STACK OF SEVEN RADIATORS.

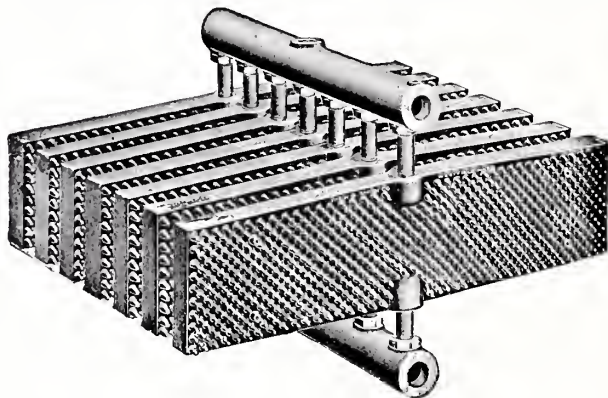


Fig. 542.

TEN-INCH FLANGE PATTERN.  
HEAD OR DRAIN SECTION.



Fig. 543.

INTERMEDIATE SECTION.



Fig. 544.

For Sizes and Tappings, see page 173.



RADIATORS — CONTINUED.

GOLD INDIRECT PIN RADIATORS FOR STEAM OR WATER.

REGULAR PATTERN — Figs. 540 and 541.

Number of Pins on each Radiator. . . . .	936
Total Length of Radiator. . . . .	3 feet, $4\frac{1}{2}$ inches.
“ Height “ “ . . . . .	$7\frac{1}{4}$ “
“ “ “ Flanges . . . . .	13 “
“ Thickness of Radiator . . . . .	$3\frac{1}{4}$ “
Shipping Weight . . . . .	60 lbs.
Number Square Feet of Surface. . . . .	10

REGULAR TAPPING.

Supply. . . . .	$1\frac{1}{4}$ inches.
Return . . . . .	$1\frac{1}{4}$ “
Air Valve . . . . .	$\frac{3}{8}$ “

TEN-INCH DRUM PATTERN — Fig. 542.

Number of Pins on each Radiator. . . . .	1586
Total Length of Radiator. . . . .	3 feet, $4\frac{1}{2}$ inches.
“ Height “ “ “ at Ends . . . . .	10 “
“ “ “ “ “ Centre . . . . .	$11\frac{3}{4}$ “
Distance from Top of Radiator to Top of Drum. . . . .	$6\frac{1}{2}$ “
“ “ Under Side of Radiator to Under Side of Drum . . . . .	$6\frac{1}{2}$ “
“ “ Centre to Centre of Nipples . . . . .	$3\frac{1}{8}$ “
Size of Nipples connecting Radiators with Drums. . . . .	1 “
Outside Diameter of Supply and Return Drums. . . . .	$3\frac{7}{8}$ “
Shipping Weight . . . . .	95 lbs.
Number of Square Feet of Surface . . . . .	16

REGULAR TAPPING.

SUPPLY DRUM.

Each End . . . . .	$1\frac{1}{2}$ inches.
On Top . . . . .	$1\frac{1}{2}$ and $\frac{3}{8}$ “

RETURN DRUM.

Each End . . . . .	$1\frac{1}{2}$ inches.
On the Under Side . . . . .	$1\frac{1}{2}$ and $\frac{3}{8}$ “

TEN-INCH FLANGE PATTERN — Figs. 543 and 544.

Number of Pins on each Radiator. . . . .	1500
Total Length of Radiator. . . . .	3 feet, $4\frac{1}{2}$ inches.
“ Height “ “ “ at Ends . . . . .	10 “
“ “ “ “ “ Centre . . . . .	$14\frac{1}{4}$ “
“ Thickness of “ . . . . .	$3\frac{1}{8}$ “
Shipping Weight . . . . .	95 lbs.
Number of Square Feet of Surface . . . . .	15

REGULAR TAPPING.

Supply. . . . .	$1\frac{1}{2}$ inches.
Return. . . . .	$1\frac{1}{2}$ “
Air Valve . . . . .	$\frac{3}{8}$ “



# WROUGHT IRON PIPE RADIATORS.

SQUARE.

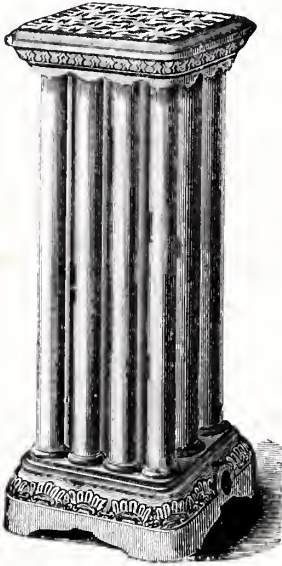


Fig. 545.

CIRCULAR.

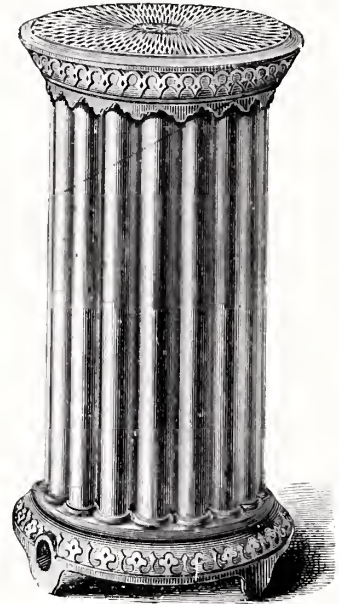


Fig. 546.

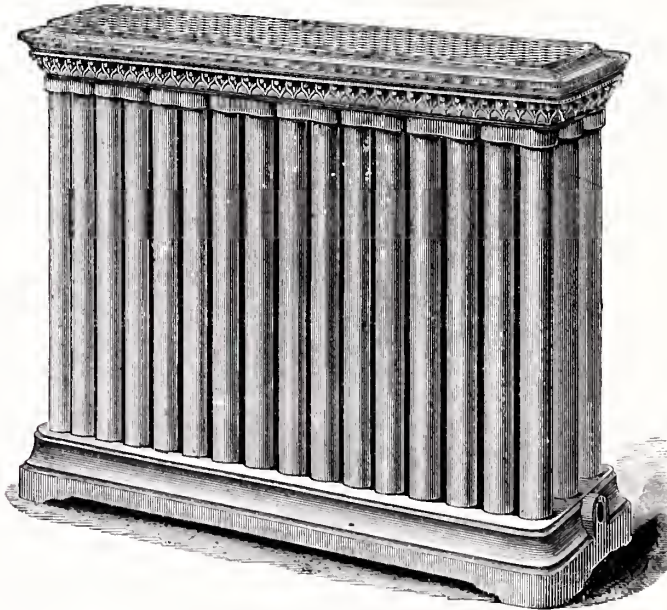
RECTANGULAR.  
3 x 16 PIPES.

Fig. 547.

Made in all sizes.

Prices quoted on application.

## BRASS RADIATOR VALVES.

BRASS SEAT—FRINK SEAT—JENKINS SEAT—ASBESTOS DISC.

FEMALE RADIATOR VALVE.

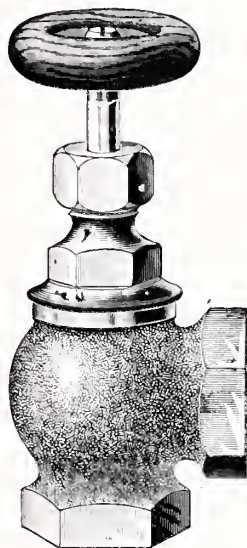


Fig. 548.

RADIATOR VALVE, WITH UNION.

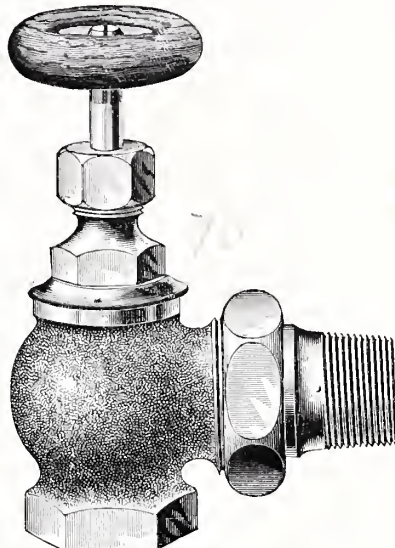


Fig. 549.

### BRASS SEAT RADIATOR VALVES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 548, Rough Body . . . . .	\$1.35	1.65	2.25	3.25	4.50	7.00
" 548, " " Nickel Plated . . . . .	1.65	1.95	2.65	3.70	5.00	7.75
" 548, Finished Body . . . . .	1.85	2.15	2.85	4.00	5.50	8.50
" 548, " " Nickel Plated . . . . .	2.15	2.50	3.25	4.45	6.00	9.25
" 549, Rough Body, with Union . . . . .	2.05	2.45	3.25	4.50	6.50	10.00
" 549, " " Nickel Plated, with Union . . . . .	2.40	2.85	3.65	5.05	7.10	10.85
" 549, Finished Body, with Union . . . . .	2.55	3.00	3.85	5.25	7.50	11.50
" 549, " " Nickel Plated, with Union . . . . .	2.90	3.40	4.30	5.80	8.10	12.35

### FRINK SEAT RADIATOR VALVES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 548, Rough Body . . . . .	\$1.65	1.95	2.65	3.85	5.35	8.00
" 548, " " Nickel Plated . . . . .	1.95	2.30	3.05	4.30	5.85	8.75
" 548, Finished Body . . . . .	2.15	2.50	3.25	4.60	6.35	9.50
" 548, " " Nickel Plated . . . . .	2.45	2.85	3.65	5.05	6.85	10.25
" 549, Rough Body, with Union . . . . .	2.35	2.80	3.65	5.10	7.35	11.00
" 549, " " Nickel Plated, with Union . . . . .	2.70	3.20	4.10	5.65	7.95	11.85
" 549, Finished Body, with Union . . . . .	2.85	3.35	4.25	5.85	8.35	12.50
" 549, " " Nickel Plated, with Union . . . . .	3.20	3.75	4.70	6.40	8.95	13.35

BRASS RADIATOR VALVES.

CONTINUED.

JENKINS DISC RADIATOR VALVES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 548. Rough Body . . . . .	\$2.00	2.50	3.20	4.50	6.25	10.50
" 548. " " Nickel Plated . . . . .	2.50	2.85	3.65	4.90	6.75	11.00
" 548. Finished Body . . . . .	2.50	3.00	3.75	5.25	7.25	11.75
" 548. " " Nickel Plated . . . . .	2.85	3.10	4.00	5.40	7.75	12.25
" 549. Rough Body, with Union . . . . .	2.75	3.50	4.30	5.85	7.35	12.60
" 549. " " Nickel Plated, with Union . . . . .	3.20	3.80	4.75	6.40	8.10	13.10
" 549. Finished Body, with Union . . . . .	3.20	4.00	4.80	6.40	8.75	13.85
" 549. " " Nickel Plated, with Union . . . . .	3.25	4.25	5.25	7.00	9.25	14.35

ASBESTOS DISC RADIATOR VALVES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 548. Rough Body . . . . .	\$2.00	2.50	3.20	4.50	6.25	10.50
" 548. " " Nickel Plated . . . . .	2.50	2.85	3.65	4.90	6.75	11.00
" 548. Finished Body . . . . .	2.50	3.00	3.75	5.25	7.25	11.75
" 548. " " Nickel Plated . . . . .	2.85	3.10	4.00	5.40	7.75	12.25
" 549. Rough Body, with Union . . . . .	2.75	3.50	4.30	5.85	7.75	12.60
" 549. " " Nickel Plated, with Union . . . . .	3.20	3.80	4.75	6.40	8.10	13.10
" 549. Finished Body, with Union . . . . .	3.20	4.00	4.80	6.40	8.75	13.85
" 549. " " Nickel Plated, with Union . . . . .	3.25	4.25	5.25	7.00	9.25	14.35

RADIATOR VALVES WITH LOCK AND SHIELD.

WITH FRINK SEAT.



Fig. 550.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Plain . . . . .	1.95	2.65	3.85	5.35	8.00
" " Plated . . . . .	2.30	3.05	4.30	5.85	8.75
Finished Body . . . . .	2.50	3.25	4.60	6.35	9.50
" " Plated . . . . .	2.85	3.65	5.05	6.85	10.25

WITH BRASS SEAT, DEDUCT.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Deduct . . . . .	0.35	.40	.50	.85	1.00
Add for Keys, extra . . . . .	.75	.75	1.00	1.00	1.25

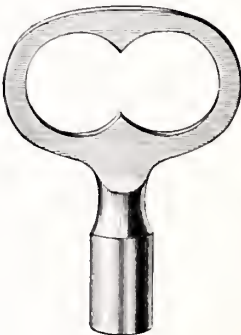


Fig. 551.



# CORNER RADIATOR VALVES.

CORNER VALVE WITH UNION.

FEMALE CORNER VALVE.

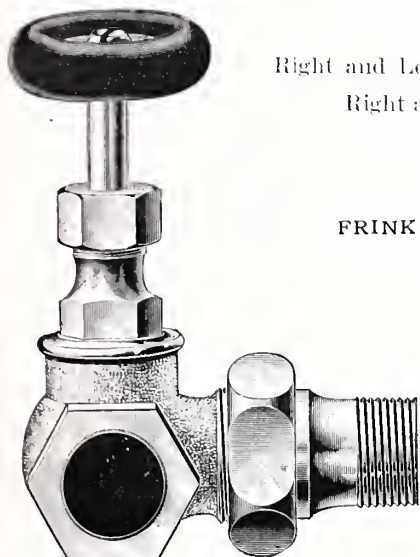


Fig. 552.

Right and Left-hand, with and without Union, with  
Right and Left-hand Threads, and Male  
and Female Union.

FRINK SEAT.

JENKINS DISC.

ASBESTOS DISC.

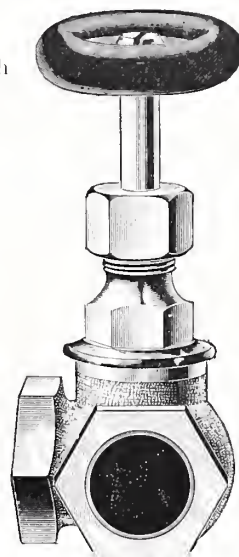


Fig. 553.

## CORNER RADIATOR VALVES WITH UNION.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Frink Seat, Rough Body . . . . .	\$3.05	3.85	4.75	6.45	8.55	13.85
"    "    "    Nickel Plated . . . . .	3.50	4.20	5.25	7.05	8.95	14.45
"    "    Finished Body . . . . .	3.50	4.40	5.30	7.05	9.65	15.25
"    "    "    Nickel Plated . . . . .	3.55	4.70	5.80	7.70	10.20	15.80
Jenkins Disc, Rough Body . . . . .	3.05	3.85	4.75	6.45	8.55	13.85
"    "    "    Nickel Plated . . . . .	3.50	4.20	5.25	7.05	8.95	14.45
"    "    Finished Body . . . . .	3.50	4.40	5.30	7.05	9.65	15.25
"    "    "    Nickel Plated . . . . .	3.55	4.70	5.80	7.70	10.20	15.80
Asbestos " Rough Body . . . . .	3.00	3.75	4.60	6.35	8.50	..
"    "    "    Nickel Plated . . . . .	3.50	4.25	5.10	7.00	8.85	..
"    "    Finished Body . . . . .	3.50	4.50	5.30	7.15	9.75	..
"    "    "    Nickel Plated . . . . .	4.00	4.90	6.00	7.85	10.00	..

## CORNER RADIATOR VALVES — FEMALE.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Asbestos Disc, Rough Body . . . . .	\$2.25	2.75	3.50	5.00	7.00	..
"    "    "    Nickel Plated . . . . .	2.75	3.25	4.00	5.50	7.50	..
"    "    Finished Body . . . . .	2.75	3.50	4.25	5.80	8.25	..
"    "    "    Nickel Plated . . . . .	3.25	3.75	4.75	6.25	8.50	..
Jenkins " Rough Body . . . . .	2.25	2.75	3.50	5.00	7.00	11.55
"    "    "    Nickel Plated . . . . .	2.75	3.15	4.00	5.50	7.50	12.10
"    "    Finished Body . . . . .	2.75	3.25	4.25	5.75	8.00	12.95
"    "    "    Nickel Plated . . . . .	3.15	3.50	4.50	6.00	8.25	13.50
Frink Seat, Rough Body . . . . .	2.25	2.75	3.50	5.00	7.00	11.55
"    "    "    Nickel Plated . . . . .	2.75	3.15	4.00	5.50	7.50	12.10
"    "    Finished Body . . . . .	2.75	3.25	4.25	5.75	8.00	12.95
"    "    "    Nickel Plated . . . . .	3.15	3.50	4.50	6.00	8.25	13.50



RADIATOR VALVES.

WEBER'S IMPROVED HOT WATER RADIATOR VALVES.

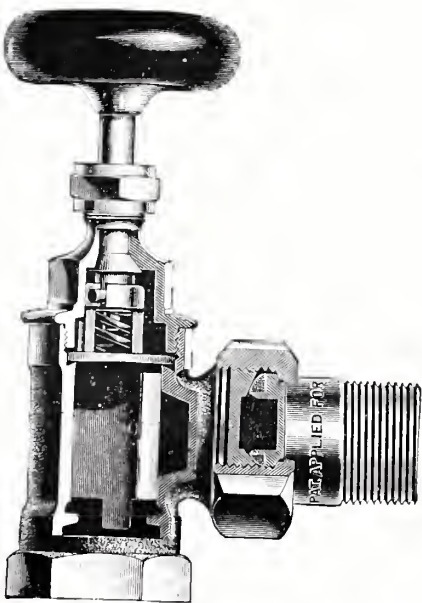


Fig. 554.

RADIATOR VALVES WITH HARD FIBRE PACKING — UNION.

STEAM METAL.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings . . . . .	2.45	3.25	4.50	6.50	10.00
“ “ Plated all over . . . . .	2.85	3.65	5.05	7.10	10.85
Finished Body . . . . .	3.00	3.85	5.25	7.50	11.50
“ “ Plated all over . . . . .	3.40	4.30	5.80	8.10	12.35

These Valves are made with Male Union only.  
We can furnish a cheaper grade Valve than illustrated, which we call our Class B, and is made without self-packing stuffing box.

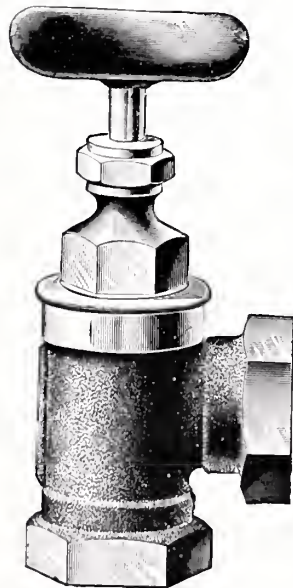


Fig. 555.

RADIATOR VALVES — FEMALE.

STEAM METAL.

SIZE . . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings . . . . .	1.60	2.25	3.25	4.50	7.00
“ “ Plated all over . . . . .	1.95	2.65	3.70	5.00	7.75
Finished Body . . . . .	2.15	2.85	4.00	5.50	8.50
“ “ Plated all over . . . . .	2.50	3.25	4.45	6.00	9.25

In ordering Female Valves state whether left-hand thread is wanted at bottom or side. See notice under Fig. 554.

RADIATOR VALVES—CONTINUED.

WEBER'S IMPROVED HOT WATER RADIATOR VALVES.

MALE AND FEMALE RADIATOR VALVES.  
STEAM METAL.

SIZE. . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Finished Trimmings . . . . .	\$1.60	2.25	3.25	4.50	7.00
Rough Body, Plated all over . . . . .	1.95	2.65	3.70	5.00	7.75
Finished Body . . . . .	2.15	2.85	4.00	5.50	8.50
Finished Body, Plated all over . . . . .	2.50	3.25	4.45	6.00	9.25

See Note page 178, Fig. 554.

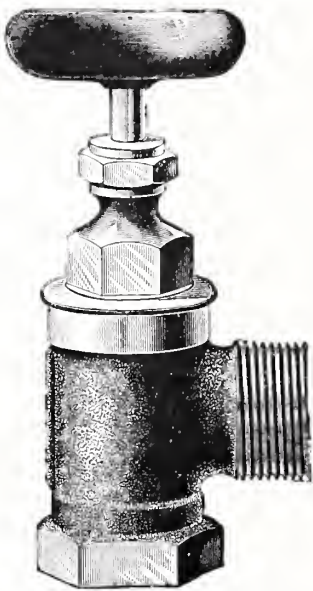


Fig. 556.

WEBER'S COMPOSITION CORNER GATE AND  
ANGLE RADIATOR VALVES.

SIZE. . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Rough Body, Wood Wheel, Finished Trimmings . . . . .	\$2.25	3.25	4.40	6.10	9.00
Rough Body, Wood Wheel, Plated Trimmings . . . . .	2.40	3.35	4.65	6.30	9.25
Rough Body, Wood Wheel, Plated all over . . . . .	2.55	3.50	4.85	6.50	9.50

RIGHT-HAND VALVE.

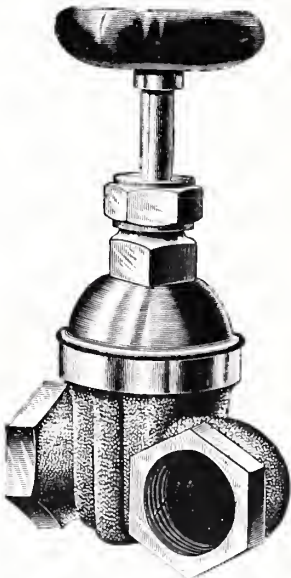


Fig. 557.

All Valves are tapped right-hand unless otherwise ordered.  
Specify whether right or left-hand is wanted in ordering.

IMPROVED FOOT RADIATOR VALVES.

FOR HOT WATER AND STEAM RADIATORS.

MALE AND FEMALE.

WITH UNION.

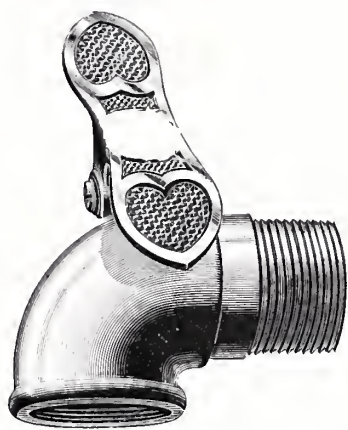


Fig. 558.

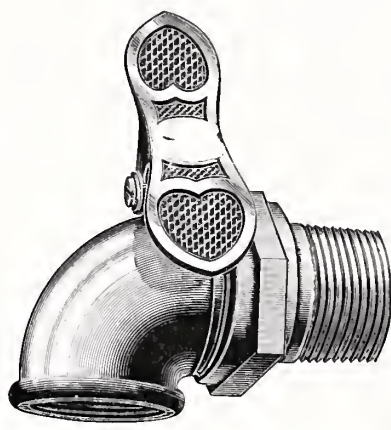


Fig. 559.

SIZE. . . . . INCHES.	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Fig. 558, Rough Body, Plated Foot Piece . . . .	\$2.70	3.50	4.75	6.50	10.75
" 558, Rough Body, Plated all over . . . . .	2.85	3.65	4.90	6.75	11.00
" 558, Finished and Plated all over . . . . .	3.10	4.00	5.40	7.75	12.25
" 559, Rough Body, Plated Foot Piece . . . .	3.75	4.65	6.25	8.00	12.85
" 559, Rough Body, Plated all over . . . . .	3.80	4.75	6.40	8.10	13.10
" 559, Finished and Plated all over . . . . .	4.25	5.25	7.00	9.25	14.35

RADIATOR UNION ELBOWS—BRASS.

MALE UNION.

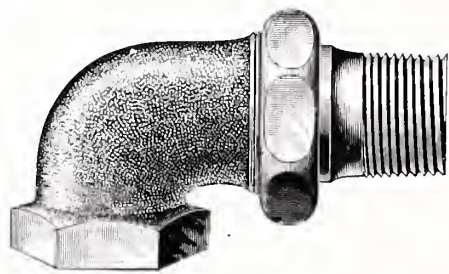


Fig. 560.

SIZE. . . . . INCHES.	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Rough Body . . . . .	\$1.75	2.25	2.95	3.70	5.75
Nickel Plated . . . . .	2.00	2.50	3.20	4.00	6.00
Finished . . . . .	2.20	2.75	3.60	4.60	6.60
Finished, Nickel Plated . . . . .	2.45	3.00	3.85	4.90	6.90

# RADIATOR AIR VALVES.

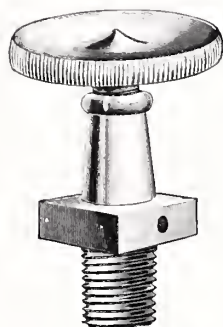


Fig. 561.



Fig. 562.



Fig. 563.

Figs. 561, 562, 563 and 564.

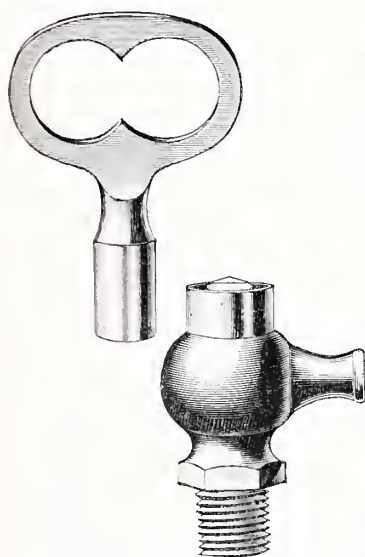


Fig. 564.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 561. Plain . . . . .	\$0.35	.40
" 561. Plated . . . . .	.40	.45
" 562. Plain . . . . .	.50	.55
" 562. Plated . . . . .	.55	.60
" 563. Plain . . . . .	.65	.70
" 563. Plated . . . . .	.70	.75
" 564. Plain . . . . .	.50	.55
" 564. Plated . . . . .	.55	.60
Extra Keys . . . . .	.25	.25

## BRASS RADIATOR NIPPLES.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Right and Left Thread . . . . .	\$0.30	.30	.45	.75	1.00	1.25
" " " " Plated . . . . .	.40	.40	.55	.90	1.20	1.50



RADIATOR AIR VALVES—CONTINUED.

DAVIS AUTOMATIC AIR VALVES.

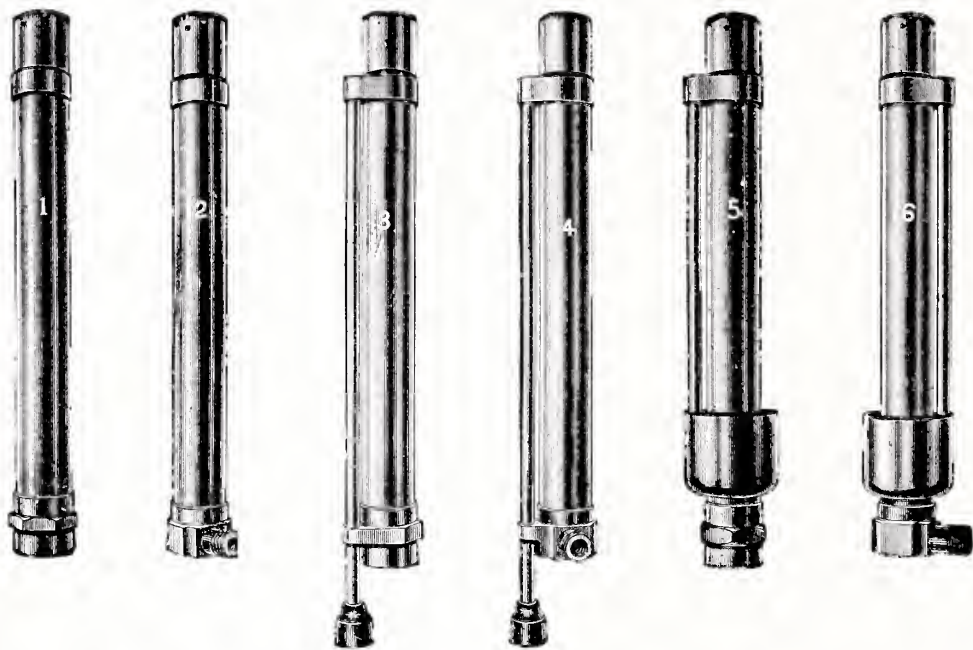


Fig. 565.

Nos. 1 and 2	Brass, per dozen	\$13.50
" 3	" 4	15.00
" 5	" 6	17.00
" 1	" 2 Plated,	15.00
" 3	" 4	17.00
" 5	" 6	19.00

Order by number, and state whether Brass or Plated.

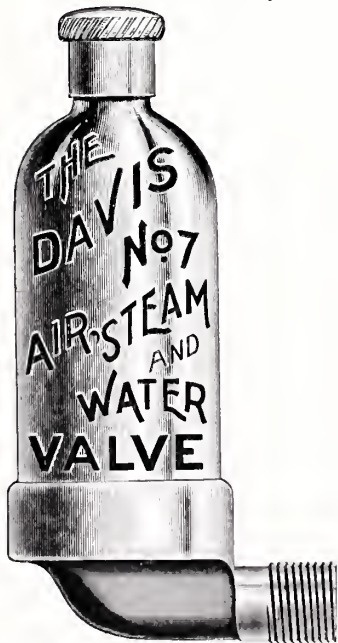


Fig. 566.  
Cut full size.

THE DAVIS No. 7 (FLOAT) AIR VALVE.

Price each . . . . . \$1.25

Price per dozen . . . . . 15.00

Closes both by floatation and expansion.

All Valves Nickel Plated.

# RADIATOR AIR VALVES—CONTINUED.

## PIERCE AIR VALVES.

WITHOUT DRIP.

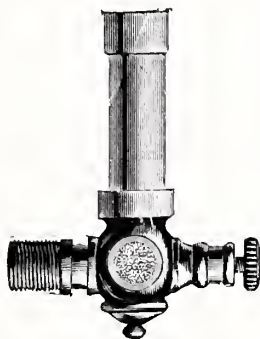


Fig. 567.

WITH DRIP.

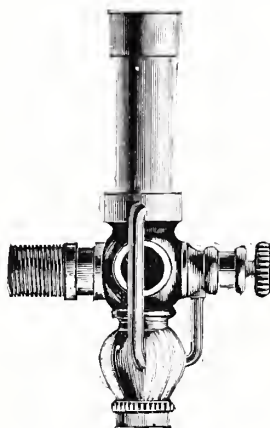


Fig. 568.

Without Drip, per dozen	.....	\$6.00
With " " "	.....	9.00

## JENKINS AUTOMATIC AIR VALVES.

R. & L. COUPLING WITH UNION.

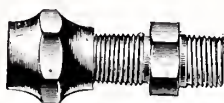


Fig. 569.

DRIP CUP.



Fig. 570.

R. & L. COUPLING.

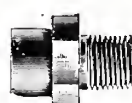


Fig. 571.

JENKINS AIR VALVE.

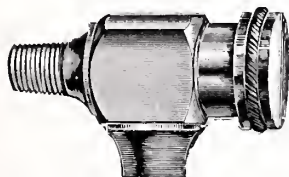


Fig. 572.

AUXILIARY VALVE.



Fig. 573.

WITH DRIP CONNECTION.

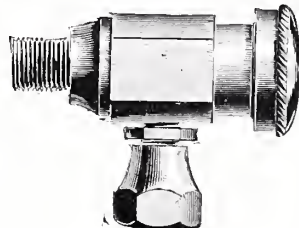


Fig. 574.

FIG. . . . .	569	570	571	572	573	574
Size . . . . .	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
Nickel Plated, per dozen . . .	\$3.50	2.00	2.50	7.50	2.50	7.50

RADIATOR AIR VALVES—CONTINUED.

ACME AUTOMATIC AIR VALVES.

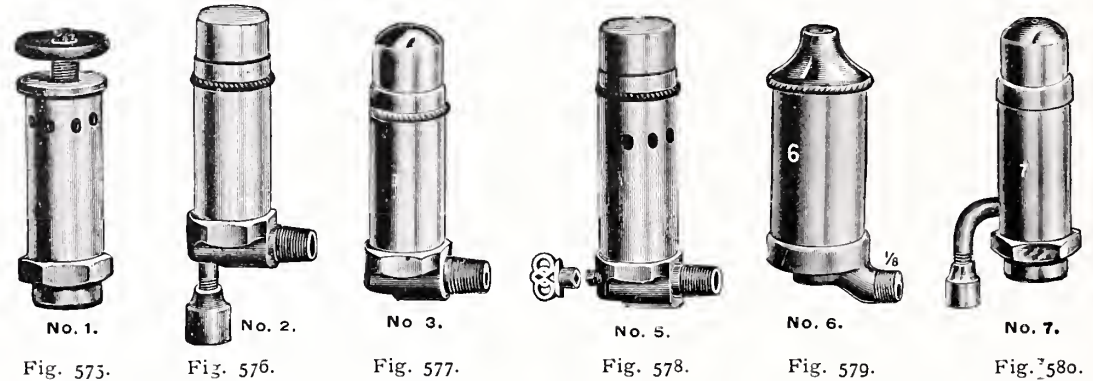


FIG. . . . .	575	576	577	578	*579	580
Nickel Plated . . . . .	\$1.15	1.25	1.15	1.50	1.25	1.25
Electro Bronzed . . . . .	1.25	1.35	1.25	1.60	1.35	1.35

\*Special Valve for hot water.

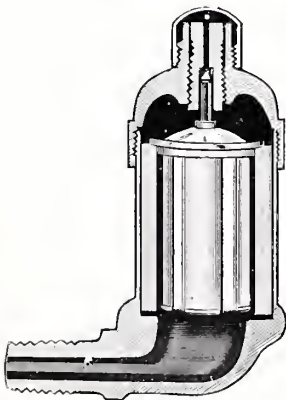


Fig. 581.

HODGE'S AIR VALVES.

Price, Nickel Plated . . . . . \$1.00

RADIATOR BRONZE.

Furnished in one-pound cans in any color desired.

Pale Gold, Second Quality . . . . .	\$1.50 per lb.
“ “ First “ . . . . .	2.00 “
Green, Blue and other shades. . . . .	2.00 “



Fig. 582.

RADIATOR BRONZE LIQUID.

Furnished in any quantity desired . . . . . \$2.00 per gal.

RADIATOR AIR VALVES—CONTINUED.

No. 1 VICTOR.

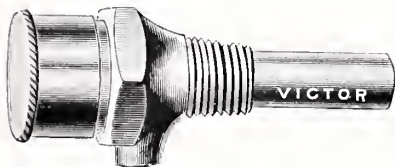


Fig. 583.

No. 2 VICTOR.

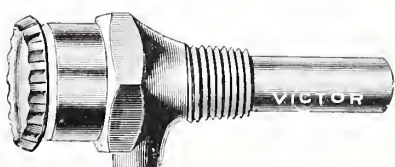


Fig. 584.

No. 1 has slotted head, covered by a cap.  
No. 2 has knurled head, and may be operated with the thumb and finger.  
No. 3 (not illustrated) is the same as No. 1 with addition of drip connection.  
No. 4 (not illustrated) is the same as No. 2 with addition of drip connection.

No. 1, Nickel Plated, per doz. . . . .	\$7.50
" 2, " " " " . . . . .	7.50
" 3, " " " " . . . . .	9.00
" 4, " " " " . . . . .	9.00

VAN AUKEN'S AUTOMATIC AIR VALVES.

No. 1.

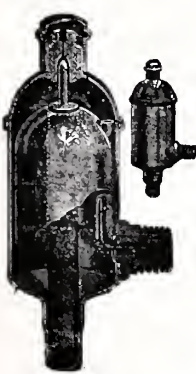


Fig. 585.

No. 2.



Fig. 586.

No. 3.

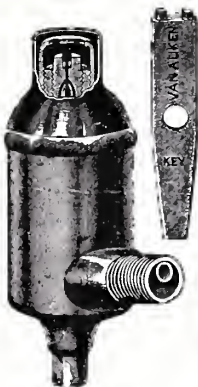


Fig. 587.

No. 4.



Fig. 588.

HOT WATER VALVE.

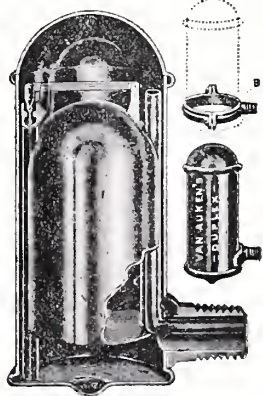


Fig. 589.

FIG. . . . .	585	586	587	588	589
Nickel Plated. . . . .	\$1.15	1.15	1.35	1.55	3.00

Nos. 1 and 2 with Screw Cap, 5c. extra, net. Keys for No. 3, 25c. each. All 1/2 inch connections.



THERMOMETERS.

FOR HOT WATER AND STEAM HEATERS.

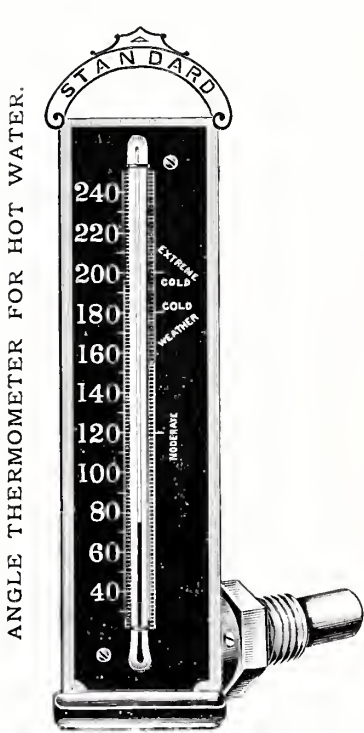


Fig. 590.

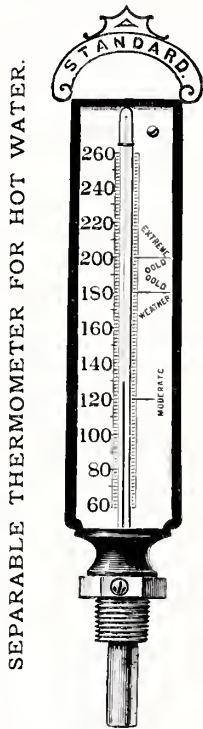


Fig. 591.

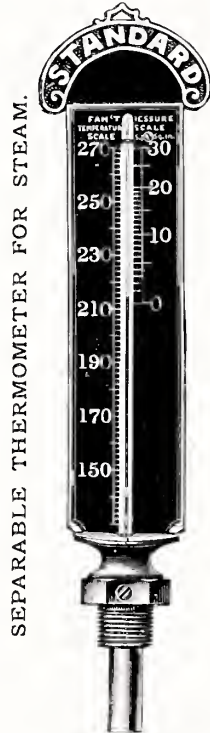


Fig. 592.

Fig. 590 . . . . .	Per doz. \$27.00
Figs. 591 and 592 . . . . .	" 24.00

STANDARD THERMOMETERS.

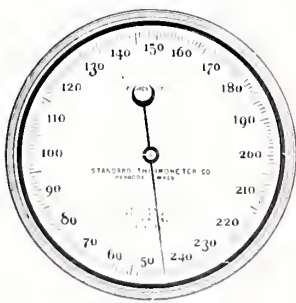


Fig. 593.

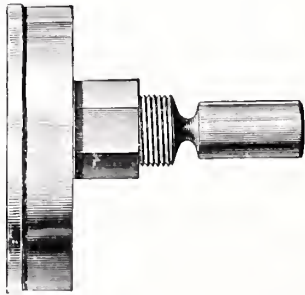


Fig. 594.

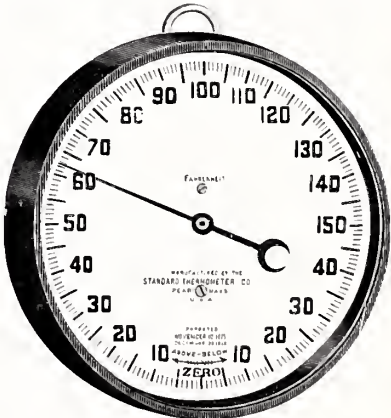


Fig. 595.

Fig. 593. 4-inch metal dial, 2½-inch extension, ¾-pipe thread, for hot water and steam pipes. Range 50° to 250° . . . . .	\$5.00
Also made Vertical.	
" 595. This Thermometer has a 6-inch dial, Black Metallic Case. The figures on this dial are particularly plain, and can be read at a great distance . . . . .	2.50

# THE POWERS THERMOSTAT.

FOR AUTOMATICALLY CONTROLLING HOUSE TEMPERATURE —  
USED WITH THE No. 2, 3, 4 and 6 REGULATOR.

THERMOSTAT.

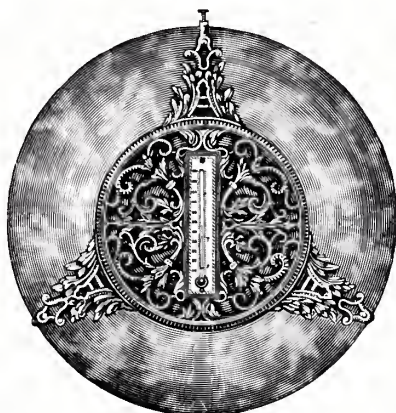
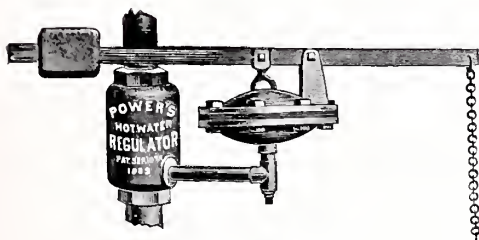


Fig. 596.

No. 1 REGULATOR.



Limiting Device.

Fig. 597.

No. 2 DIAPHRAGM.

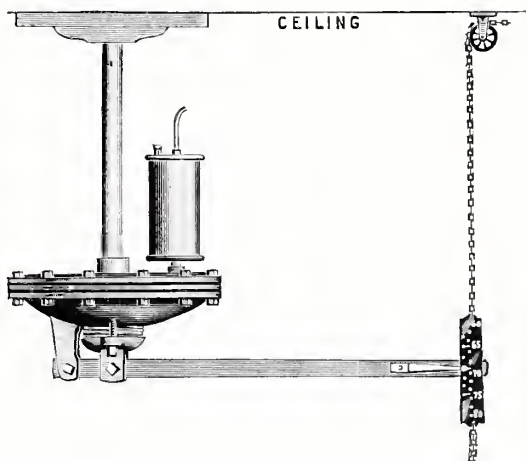


Fig. 598.

Limiting device only, price . . . . . \$25.00

Used with Thermostat for controlling Hot  
Air Furnaces and Hot Water Heaters  
by the house temperature only,  
price . . . . . \$40.00  
With Thermometer, extra, net . . . . . 2.50

# THE POWERS THERMOSTAT—CONTINUED.

No. 3 DIAPHRAGM.

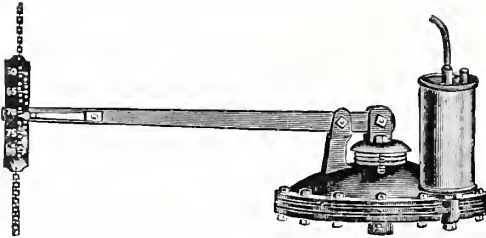


Fig. 599.

Used with Thermostat on Low Pressure Steam. Price, with Thermostat complete . . . . . \$45.00  
With Thermometer, extra, net. . . . . 2.50

No. 4 DIAPHRAGM AND GENERATOR.

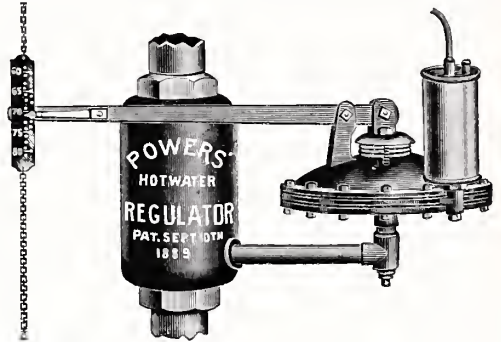


Fig. 600.

Used with Hot Water Heaters to prevent boiling over and to control house temperature. Price, complete with Thermostat . . . . . \$50.00  
With Thermometer, extra, net. . . . . 2.50

No. 6 DIAPHRAGM AND BALANCED VALVES.

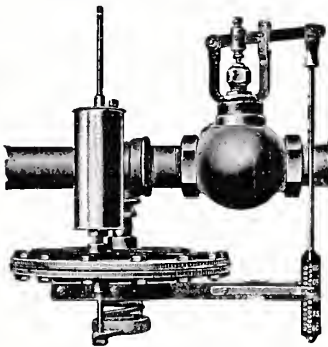


Fig. 601.

Used with Thermostat for controlling Live Steam supplied for heating residences, offices, etc. Price, with Thermostat (without valve) . . . . . \$45.00  
With Thermometer, extra, net. . . . . 2.50

AUTOMATIC GAS VALVE.

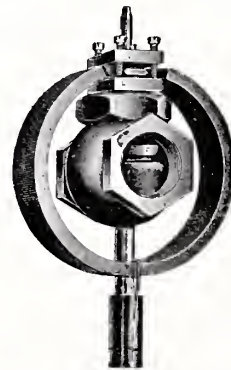


Fig. 602.

Used with the Powers Regulator on Natural Gas. Price:

1 in.	1½ in.	1¾ in.	2 in.
\$3.00	3.50	4.50	6.00

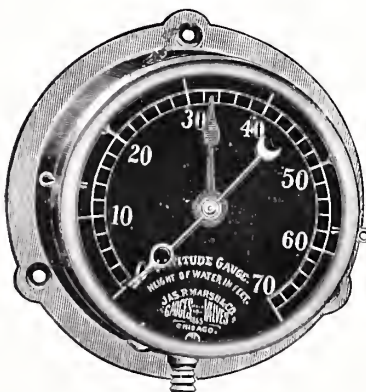


Fig. 603.

## MARSH'S ALTITUDE GAUGE.

This Gauge will indicate accurately, at the boiler, the amount of water in the system, and will be found a useful instrument.

EXPLANATION—When the water is at its proper level in expansion tank, remove the ring and glass, and set the stationary hand at the pressure indicated by the working hand. Whenever the pressure falls below this point, water should be added.

Price . . . . . \$10.00



## SQUARE REGISTERS.

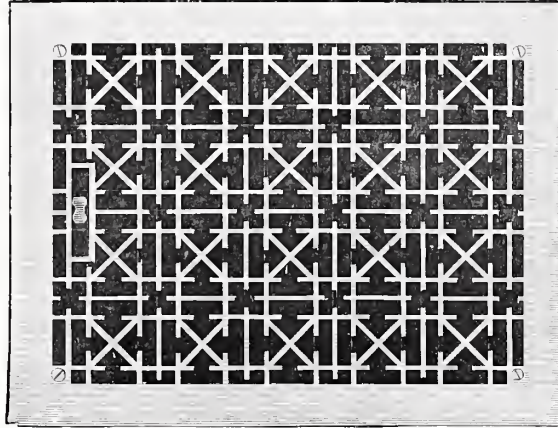
JAPANNED,  
BLACK OR WHITE.

Fig. 604.

Size of Opening.	Register.	Without Valves.	Register Face.	Ventilator for Corbs.	Floor Boarder.	Wall Frame.		Size of Opening.	Register.	Without Valves.	Register Face.	Ventilator for Corbs.	Floor Boarder.	Wall Frame.	
						2 in. deep.	4 in. deep.							2 in. deep.	4 in. deep.
4 1/2 X 6 1/2	\$1.40	.90	.46	1.50	...	.40	...	12 X 19	7.50	5.70	3.20	7.65	2.80	1.60	3.60
4 X 8	1.50	1.00	.48	1.60	...	.50	...	12 X 20	8.00	6.00	3.40	8.15	3.00	1.65	3.70
4 X 10	1.65	1.15	.50	1.75	...	.70	...	12 X 24	9.75	6.50	3.90	9.90	3.35	1.95	4.00
4 X 13	2.00	1.40	.65	2.10	...	...	...	12 X 30	13.00	9.25	6.00	13.15	...	...	...
4 X 15	2.30	1.60	.75	2.40	1.30	...	...	12 X 36	14.50	10.25	6.75	14.75	...	...	...
4 X 18	3.00	2.10	1.10	3.10	...	...	...	14 X 14	7.50	5.70	3.15	7.65	2.65	1.60	3.60
5 X 8	1.65	1.15	.50	1.75	1.10	...	...	14 X 16	8.00	6.00	3.30	8.15	2.90	1.65	3.65
5 X 11	2.00	1.40	.65	2.15	1.20	...	...	14 X 18	8.75	6.30	3.50	8.90	3.15	1.70	3.70
5 X 13	2.25	1.55	.70	2.35	1.30	...	...	14 X 20	9.50	6.60	3.70	9.65	3.40	1.75	3.75
5 X 16	2.60	1.90	.85	2.70	1.50	...	...	14 X 22	10.00	6.90	3.90	10.15	3.70	1.90	3.80
6 X 6	1.80	1.20	.60	1.90	...	.65	...	15 X 25	13.00	9.25	6.00	13.25	4.25	...	4.00
6 X 8	1.90	1.20	.65	2.00	1.15	.70	1.20	16 X 16	9.25	6.15	3.90	9.40	3.40	...	3.75
6 X 9	2.00	1.30	.68	2.10	1.20	.70	...	16 X 18	10.25	7.00	4.45	...	...	...	...
6 X 10	2.10	1.45	.70	2.20	1.25	.75	...	16 X 20	10.50	7.75	4.95	10.75	3.80	...	3.80
6 X 14	2.70	1.95	.90	2.80	1.45	.80	...	16 X 22	11.75	8.50	5.45	...	...	...	...
6 X 16	3.00	2.10	1.10	3.10	1.55	1.10	...	16 X 24	13.00	9.25	6.00	13.25	4.35	...	3.90
6 X 18	3.40	2.40	1.35	3.52	1.75	1.20	...	16 X 28	16.50	12.60	7.75	...	...	...	...
6 X 24	6.36	4.25	2.15	6.50	2.50	1.50	...	16 X 32	20.00	15.00	9.50	...	...	...	...
7 X 7	2.10	1.45	.70	2.20	1.15	.80	...	18 X 18	12.00	9.00	5.75	12.25	4.00	...	3.40
7 X 10	2.30	1.60	.75	2.40	1.30	.90	...	18 X 21	13.50	9.65	6.50	13.75	4.75	...	3.75
8 X 8	2.25	1.50	.80	2.35	1.30	.75	1.30	18 X 24	14.50	10.25	6.75	14.75	5.50	...	4.10
8 X 10	2.50	1.75	.85	2.62	1.40	.85	1.40	18 X 27	17.00	12.00	7.50	17.25	6.75	...	4.50
8 X 12	2.80	2.00	1.00	2.92	1.50	.90	1.60	18 X 30	20.00	14.00	8.20	20.25	7.00	...	5.10
8 X 15	3.60	2.55	1.50	3.72	1.80	1.00	2.00	18 X 36	24.50	18.00	11.00	24.75	7.50	...	6.00
8 X 18	4.20	3.05	1.75	4.32	2.00	1.25	2.35	20 X 20	13.50	9.65	6.50	13.75	4.75	...	4.00
8 X 21	6.50	4.75	2.60	6.65	2.50	1.40	2.55	20 X 24	15.00	10.65	7.00	15.25	6.00	...	4.45
8 X 24	8.05	6.00	3.20	8.20	3.00	1.55	2.90	20 X 26	17.00	12.00	7.50	17.25	6.75	...	4.75
9 X 9	2.65	1.85	1.00	2.75	1.40	.90	...	21 X 29	20.00	14.00	8.20	20.50	7.00	...	5.30
9 X 12	3.30	2.35	1.25	3.42	1.55	.95	2.00	24 X 24	20.00	14.00	8.20	20.50	7.00	...	5.30
9 X 13	3.45	2.45	1.35	3.60	1.60	.95	...	24 X 27	24.50	18.00	11.00	25.00	7.50	...	5.55
9 X 14	3.60	2.55	1.50	3.72	1.65	1.00	2.25	24 X 30	25.50	18.25	11.75	26.00	8.00	...	6.00
9 X 16	5.30	4.00	2.20	5.45	2.00	1.20	...	24 X 32	27.00	21.00	12.25	27.50	7.50	...	6.15
9 X 18	6.15	4.55	2.50	6.30	2.35	...	...	24 X 36	33.00	23.50	13.85	33.50	8.00	...	6.75
9 X 20	7.00	5.40	3.00	7.15	...	...	...	24 X 45	45.00	36.00	17.50	45.50	...	...	...
10 X 10	3.25	2.30	1.20	3.37	1.70	1.00	1.90	27 X 27	25.00	18.00	10.70	25.50	7.50	...	6.75
10 X 12	3.60	2.55	1.50	3.72	1.80	1.00	2.00	27 X 38	33.00	24.00	14.00	...	8.00	...	6.75
10 X 14	4.25	2.90	1.85	4.40	1.90	1.10	2.30	30 X 30	30.00	21.00	13.00	...	7.50	...	6.75
10 X 16	4.75	3.25	2.15	4.90	2.00	1.25	2.50	30 X 36	42.00	30.00	21.00	...	...	...	...
10 X 18	6.00	4.45	2.45	6.15	2.20	1.35	3.00	30 X 42	48.00	35.10	23.70	...	...	...	...
10 X 20	6.75	5.10	2.80	6.90	2.40	1.45	3.30	EXTRA HEAVY, FOR STORES, ETC.							
11 X 17	6.00	4.45	2.40	6.15	2.40	...	...								
12 X 12	5.00	3.65	2.10	5.15	2.00	1.30	2.40	20 X 24	19.00	14.50	10.25	...	7.50	...	...
12 X 14	5.75	4.30	2.30	5.90	2.30	1.40	2.80	27 X 27	30.00	21.00	12.00	...	7.50	...	...
12 X 15	6.00	4.45	2.40	6.15	2.40	1.45	3.00	27 X 38	35.00	26.00	16.00	...	8.00	...	...
12 X 16	6.50	4.75	2.60	6.65	2.50	1.50	3.00								
12 X 17	6.75	5.10	2.80	6.90	2.60	1.55	3.25								
12 X 18	7.00	5.40	3.00	7.15	2.70	1.55	3.40								

Ceiling Ventilators 25 cents extra over regular Ventilators.



ROUND REGISTERS.

JAPANNED, BLACK OR WHITE.

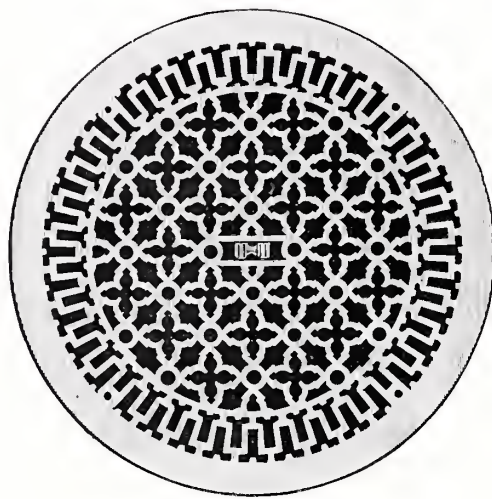


Fig. 605.

Size of Opening.	Register.	Without Valves.	Register Face.	Ventilator for Cords.	Floor Border.
6	\$1.35	.90	.50	1.45	1.00
7	1.50	1.00	.60	1.60	1.10
8	1.85	1.15	.65	1.95	1.20
9	2.25	1.45	.85	2.37	1.30
10	2.75	1.70	1.00	2.87	1.40
12	3.60	2.20	1.50	3.75	1.80
14	5.40	3.10	2.00	5.55	2.25
16	7.00	4.15	2.70	7.20	3.00
18	9.25	5.30	3.45	9.50	4.00
20	11.50	7.35	4.15	11.80	5.00
24	15.50	10.95	6.45	16.00	6.50
30	27.50	18.70	13.40	28.50	12.15

ESTIMATED CAPACITY OF PIPES AND REGISTERS.

ROUND PIPES.

Diameter of Pipe.	Area in Square Inches.	Diameter of Pipe.	Area in Square Inches.	Diameter of Pipe.	Area in Square Inches.
7	38	12	113	22	380
8	50	14	154	24	452
9	63	16	201	26	531
10	78	18	254	28	616
11	95	20	314	30	707

REGISTERS.

Size of Opening.	Capacity in Square Inches.	Size of Opening.	Capacity in Square Inches.	Size of Opening.	Capacity in Square Inches.
6 x 10	40	10 x 14	93	20 x 20	267
8 x 10	53	10 x 16	107	20 x 24	320
8 x 12	64	12 x 15	120	20 x 26	347
8 x 15	80	12 x 19	152	21 x 29	406
9 x 12	72	14 x 22	205	27 x 27	486
9 x 14	84	15 x 25	250	27 x 38	684
10 x 12	80	16 x 24	256	30 x 30	600

ROUND REGISTERS.

Size of Opening.	Capacity in Square Inches.	Size of Opening.	Capacity in Square Inches.	Size of Opening.	Capacity in Square Inches.
7	26	12	75	20	209
8	33	14	103	24	301
9	42	16	134	30	471
10	52	18	169	36	679

# THE STURTEVANT STEEL PRESSURE BLOWERS.

BLOWER WITHOUT BED.

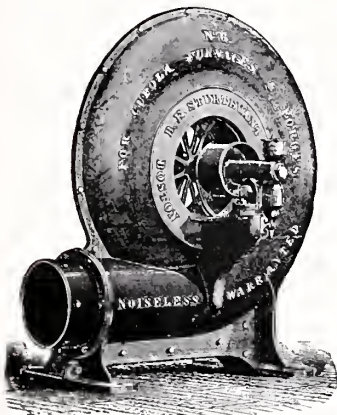


Fig. 606.

BLOWER ON ADJUSTABLE BED.

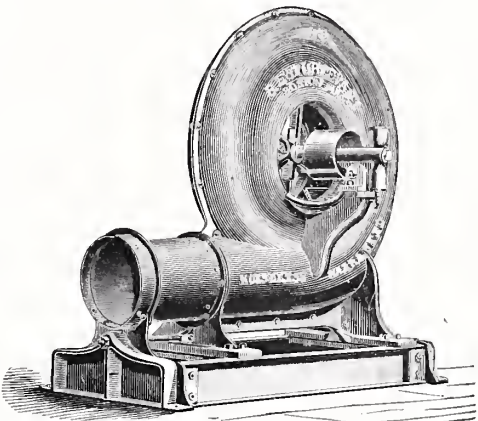


Fig. 607.

Number of Blower.	BLOWER.			COUNTERSHAFT.			PRICE.		
	Diam. of Outlet.	Diam. of Pulley.	Face of Pulley.	Diam. of Driving Pulley.	Diameter of Pulley for Main Shaft	Diam. of Shaft.	Blower without Bed.	Blower with Bed.	Blower with Bed and Countershaft.
0000	2 1/2	1 3/4	1 3/4	..	..	..	\$15.00	..	..
00	3 1/2	2 1/2	1 3/4	..	..	..	20.00	..	..
0	4 1/4	3	2 1/4	..	..	..	26.00	..	..
1	4 3/4	3 3/8	2 1/4	..	..	..	36.00	..	..
2	5 1/4	3 7/8	2 3/4	..	..	..	44.00	..	..
3	6 1/2	4 1/2	3 1/4	..	..	..	55.00	..	..
4	7 1/2	4 7/8	3 1/2	28	10, 12, 14	1 3/4	70.00	105.00	140.00
5	8 3/4	5 1/4	3 3/4	32	12, 14, 16	1 11/16	90.00	135.00	180.00
6	10 1/4	6 1/4	4 1/2	36	12, 14, 16, 18	2 3/16	115.00	175.00	230.00
7	11 1/2	7 1/4	5 1/2	42	14, 16, 18, 20	2 7/16	180.00	270.00	360.00
8	13 7/8	9	6 1/2	42	18, 20, 22, 24	2 11/16	225.00	340.00	450.00
9	16	10	7 1/2	48	18, 20, 22, 24	2 13/16	325.00	490.00	650.00
10	18 1/2	12	9 1/2	54	18, 20, 22, 24	2 15/16	450.00	675.00	900.00

When one pulley only is used, it is placed on the right hand as one faces the outlet, and the blower is designated as right-hand. When desired, the smaller sizes can be fitted with two pulleys. All sizes are regularly built to discharge horizontally at the bottom, but can be built to order to discharge either horizontally at the top, directly upward or directly downward.

In your correspondence, be sure and state what the blowers are to be used for, whether cupola furnaces, forges or other purposes. If for cupolas, state diameter inside of lining, number and size of tuyers, quantity to be melted in given time, kind of fuel used, distance blower sets from cupola. If for forges, how many, kind of work, length of pipes, etc. If possible, send a drawing of arrangement.

# GAS FIXTURES.

## BRACKETS.

STRAIGHT.



Fig. 608.

CURVED.

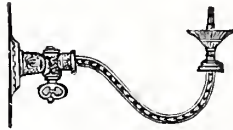


Fig. 609.

SINGLE SWING.



Fig. 610.

SINGLE SWING CURVED.

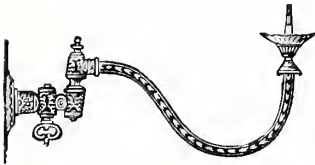


Fig. 611.

DOUBLE SWING.

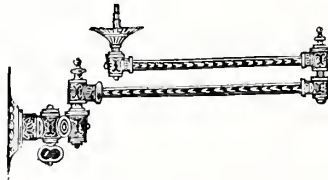


Fig. 612.

THREE SWING.

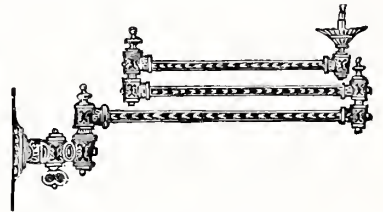


Fig. 613.

UNIVERSAL.

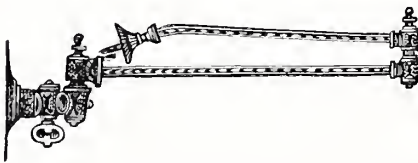


Fig. 614.

THREE SWING UNIVERSAL.

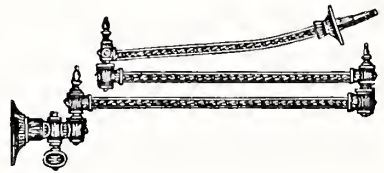


Fig. 615.

S SWING BEND.



Fig. 616.

C ARM SWING.



Fig. 617.

## PRICE-LIST

### GAS FIXTURES.

#### BRACKETS WITH BURNERS AND CUPS.

	Size of Tube.	Lacquer, Gilt or Bronze.	Polished.
Fig. 608. Straight . . . . .	$\frac{3}{8}$	\$ .40	.45
" 608. Stiff Square . . . . .	"	.50	.55
" 609. Curved . . . . .	$\frac{3}{8}$	.45	.55
" 609. " . . . . .	$\frac{5}{16}$	.40	.45
" 610. Single Swing . . . . .	$\frac{3}{8}$	.50	.60
" 610. " . . . . .	$\frac{7}{16}$	.75	.90
" 610. One Joint Square . . . . .	$\frac{3}{8}$	.75	.90
" 611. Single Swing Curved . . . . .	$\frac{3}{8}$	.60	.75
" 611. " " " . . . . .	$\frac{5}{16}$	.50	.60
" 612. Double Swing . . . . .	$\frac{7}{16}$ and $\frac{3}{8}$	.80	.95
" 612. " " . . . . .	$\frac{1}{2}$ " $\frac{7}{16}$	1.15	1.35
" 612. Two Joint Square . . . . .	$\frac{3}{8}$ x $\frac{3}{8}$	1.05	1.25
" 613. Three Swing . . . . .	$\frac{7}{16}$ , $\frac{3}{8}$ and $\frac{5}{16}$	1.15	1.35
" 613. " " . . . . .	$\frac{1}{2}$ , $\frac{7}{16}$ " $\frac{3}{8}$	1.40	1.70
" 613. Three Joint Square . . . . .	$\frac{3}{8}$ x $\frac{3}{8}$	1.40	1.65
" 614. Universal . . . . .	$\frac{3}{8}$ and $\frac{5}{16}$	1.15	1.35
" 615. Three Swing Universal . . . . .	$\frac{7}{16}$ , $\frac{3}{8}$ " $\frac{5}{16}$	1.40	1.70
" 616. S Bend . . . . .	$\frac{5}{16}$	.55	.60
" 616. " " . . . . .	$\frac{3}{8}$	.60	.75
" 617. C Arm . . . . .	$\frac{3}{8}$	.60	.75
Scroll . . . . .	$\frac{3}{8}$	1.00	1.20

#### GAS HOOKS.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Per 100 . . . . .	\$0.45	.55	.65	.80	1.00	1.30	1.60	2.00

#### BURNER CLEANERS.

Fish Tail . . . . .	Per dozen.	\$0.60
Burner Cleaners . . . . .	" "	.60



# GAS FIXTURES—CONTINUED.

BRACKET SWING COCK.



Fig. 618.

UNIVERSAL BRACKET COCK.

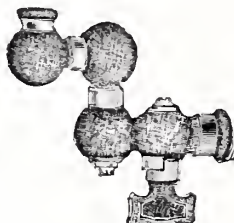


Fig. 619.

CHANDELIER COCK.



Fig. 620.

INDEPENDENT COCK.



Fig. 621.

L BURNER COCK.



Fig. 622.

L PENDANT COCK.



Fig. 623.

REVOLVING PENDANT COCK.

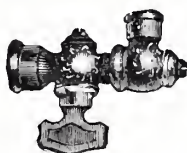


Fig. 624.

TWO-LIGHT PENDANT COCK.

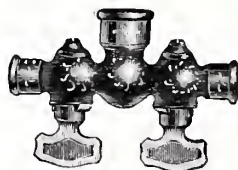


Fig. 625.

PILLAR COCK—MALE.



Fig. 626.

STREET LAMP COCK.



Fig. 627.

LEVER STREET LAMP COCK.

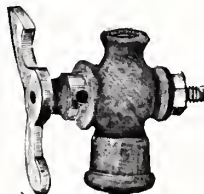


Fig. 628.

SWING JOINT.



Fig. 629.

UNIVERSAL SWING.



Fig. 630.

SIDE NOZZLE.



Fig. 631.

STRAIGHT NOZZLE.



Fig. 632.

For Prices, see page 195.

# PRICE-LIST

## GAS FIXTURES.

SIZE . . . . .	INCHES.	$\frac{1}{8}$ to $\frac{1}{4}$	$\frac{1}{4}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{3}{4}$ to $1$	$1$ to $1\frac{1}{4}$	$1\frac{1}{4}$ to $1\frac{1}{2}$	$1\frac{1}{2}$ to $1\frac{3}{4}$	$1\frac{3}{4}$ to $2$
Fig. 618, Bracket Swing Cocks, medium . . . . .	Per doz.				\$8.15	8.45	9.10		
" 618, Bracket Swing Cocks, extra heavy . . . . .	"				11.70	11.70	11.70		
" 619, Universal Bracket Cocks, medium . . . . .	"				12.05	12.35	13.00	13.00	
" 619, Universal Bracket Cocks, extra heavy . . . . .	"				15.60	15.60	16.90	16.90	
" 620, Chandelier Cocks, medium . . . . .	"	3.90	4.25	4.55	4.55	4.55	4.90		
" 620, Chandelier Cocks, extra heavy . . . . .	"		6.85	6.85		7.15	7.15	7.80	
" 621, Independent Cocks, medium . . . . .	"				6.50				
" 621, Independent Cocks, extra heavy . . . . .	"						9.10		
" 622, L Burner Cocks, medium . . . . .	"	4.25		4.55			5.20	6.20	
" 622, L Burner Cocks, extra heavy . . . . .	"			7.15			7.80	9.10	
" 623, L Pendant Cocks, medium . . . . .	"	4.90	4.90	5.20	5.20	5.20			
" 623, L Pendant Cocks, extra heavy . . . . .	"		7.50	7.80	7.80	7.80	7.80		
" 624, Revolving Pendant Cocks, medium . . . . .	"		7.15	7.50	7.80	8.15			
" 624, Revolving Pendant Cocks, extra heavy . . . . .	"		10.40	10.40	10.40	10.40			
" 625, Two-Light Pendant Cocks, medium . . . . .	"	8.45	8.45	9.10	9.10	9.10			
" 625, Two-Light Pendant Cocks, extra heavy . . . . .	"				13.35	13.65	13.65	$\frac{1}{2}$ to $\frac{1}{4}$	$\frac{1}{2}$ to $\frac{3}{4}$
" 626, Pillar Cocks, Male, medium . . . . .	"	4.90		5.20			5.50		
" 626, Pillar Cocks, Male, extra heavy . . . . .	"			6.20			6.50	$\frac{1}{2}$	$\frac{3}{4}$
" 627, Street Lamp Cocks . . . . .	"				5.55				5.85
" 628, Lever Street Lamp Cocks . . . . .	"				6.50				7.15
" 629, Swing Joint, medium . . . . .	"				5.20	5.55	6.20	$\frac{1}{2}$ to $\frac{1}{4}$	$\frac{1}{2}$ to $\frac{3}{4}$
" 629, " " extra heavy . . . . .	"					8.45	9.45	10.40	10.40
" 630, Universal Swing, medium . . . . .	"	7.80	8.15	5.45	8.80	8.80	9.10		
" 630, Universal Swing, extra heavy . . . . .	"	12.05	12.35	12.35	13.00	13.00	14.00		
" 631, Side Nozzle, medium . . . . .	"	1.00		1.65			2.30		
" 631, " " extra heavy . . . . .	"			2.20			2.60		
" 632, Straight Nozzle, medium . . . . .	"	1.00		1.65			1.95		
" 632, " " extra heavy . . . . .	"			1.95			2.20		

Drop Light Cocks and Plugs, $\frac{7}{16}$ inch to $\frac{3}{8}$ inch . . . . .	Per doz.	\$10.10
Male Hose Cocks . . . . .	Per doz.	$\frac{1}{8}$ inch. 84.55
Hose Cocks . . . . .	"	$\frac{1}{4}$ inch. 4.90
Hose Ends . . . . .	"	$\frac{3}{8}$ inch. 5.20
Male Nozzles . . . . .	"	4.25
Wall Plate, $\frac{3}{8}$ inch iron . . . . .		2.60
" " " brass . . . . .		2.95
Gas Fitters' Red Cement . . . . .	Per doz.	1.30
" " " Torch, Brass . . . . .	Per lb.	.20
" " " Tin . . . . .	Each.	1.75
" " " Blow Pipe . . . . .	"	1.50
		.65

GAS FIXTURES—CONTINUED.

DOUBLE LAVA TIP  
BURNER.



Fig. 633.

ARGAND BURNER.

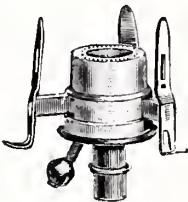


Fig. 634.

EMPIRE BULB  
BURNER WITH TIP.



Fig. 635.

BRASS PILLAR FOR  
LAVA TIPS.



Fig. 636.

IRON TIP.



Fig. 637.

LAVA TIP.



Fig. 638.

IRON  
BURNER.



Fig. 639.

Fig. 633. Double Lava Tip Burners . . . . .	Per gross.	\$9.00
" 634. Argand Burners . . . . .	" dozen.	6.00
" 635. Empire Bulb Burners with Lava Tips . . . . .	" gross.	9.50
" 636. Brass Pillars for Lava Tips . . . . .	" "	1.80
" 637. Iron Tips. . . . .	" "	2.40
" 638. Lava Tips . . . . .	" "	1.45
" 639. Iron Burners . . . . .	" "	6.00
Empire Bases . . . . .	" "	4.50
Eureka Self Lighting . . . . .	" dozen.	9.60
Scotch Tip Burners . . . . .	" gross.	7.90
Scotch Tips. . . . .	" "	2.40
Brass Pillars for Scotch Tips . . . . .	" "	4.50
Taper Torch and Key. . . . .	" dozen.	11.70
Taper Torch Extension Pieces, 24 inches . . . . .	" "	8.40
Wax Tapers, $\frac{1}{4}$ lb. boxes . . . . .	" lb.	.50
Torch and Key, Alcohol . . . . .	" dozen.	21.60
Torch, Alcohol . . . . .	" "	18.00
Key . . . . .	" "	7.20
Flexible Tube, Silk . . . . .	" foot.	.40
" " Mohair, all shades . . . . .	" "	.21
" " by box containing 96 feet . . . . .	" "	.20
Rubber Tube, $\frac{1}{4}$ inch . . . . .	" "	.20
" " $\frac{3}{8}$ " . . . . .	" "	.25
" " $\frac{1}{2}$ " . . . . .	" "	.30

# FEED WATER HEATER AND FURNACE MOUTH PROTECTOR.

BOILER FRONT SHOWING HEATER IN PLACE.

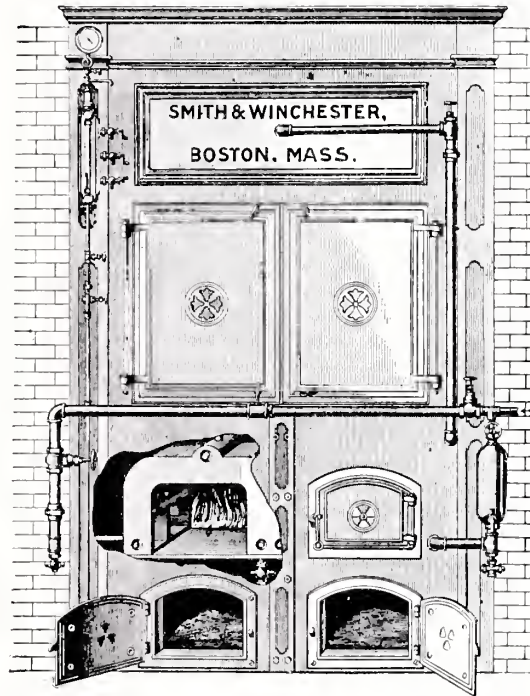


Fig. 640.

SINGLE DOOR HEATER.

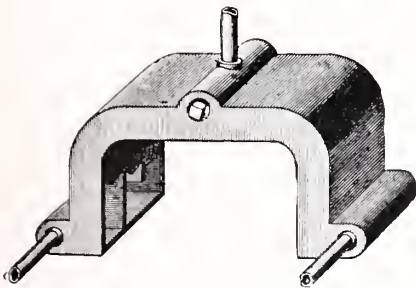


Fig. 641.

DOUBLE DOOR HEATER.

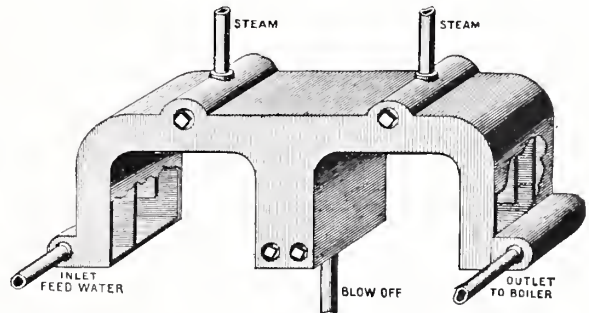


Fig. 642.

Send for estimates. Give size of furnace door, depth of furnace mouth-piece and height from grate bottom of boiler.



PLUMBING DEPARTMENT.

ROUGH STOPS, NUT AND WASHER.  
FOR LEAD PIPE.

TEE HANDLE.

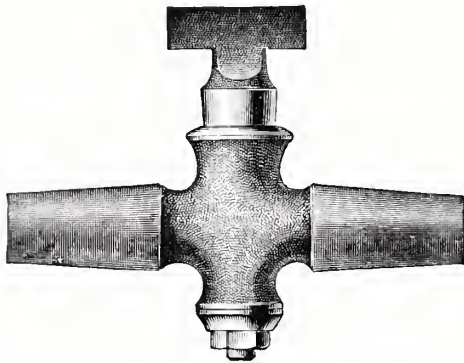


Fig. 643.

LEVER HANDLE.

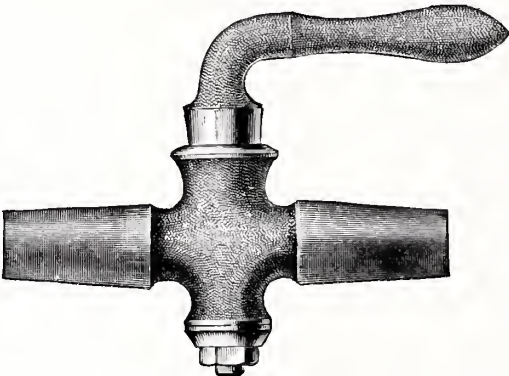


Fig. 644.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 643 and 644 . . . . . Per dozen.	\$7.00	9.00	12.00	15.00	19.00	28.00	46.00	64.00	110.00

ROUGH STOP AND WASTES, NUT AND WASHER.  
FOR LEAD PIPE.

TEE HANDLE.

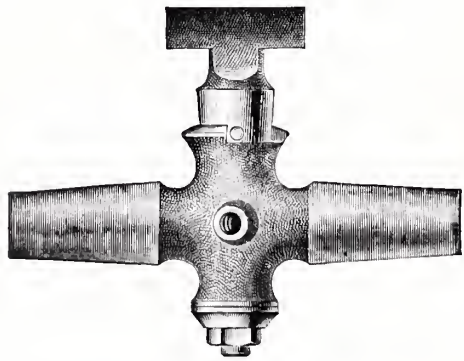


Fig. 645.

LEVER HANDLE.

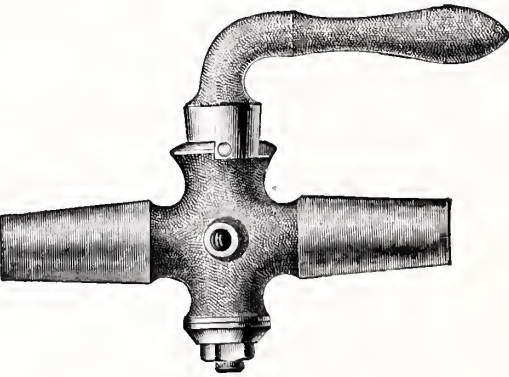


Fig. 646.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 645 and 646 . . . . . Per dozen.	\$8.00	10.00	13.00	16.00	20.50	30.00	49.00	68.00	120.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

## ROUGH STOPS, NUT AND WASHER.

CONTINUED.

FOR LEAD AND IRON PIPE.

TEE HANDLE.

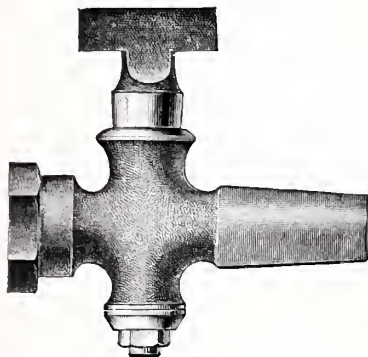


Fig. 647.

LEVER HANDLE.

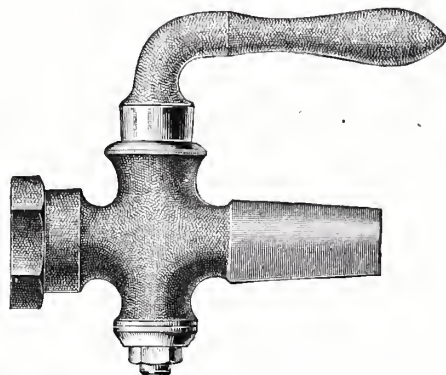


Fig. 648.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{1}$	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 647 and 648 . . . . . Per dozen.	\$7.50	9.50	12.50	16.00	20.00	29.50	48.00	115.00

## ROUGH STOP AND WASTES, NUT AND WASHER.

FOR LEAD AND IRON PIPE.

TEE HANDLE.

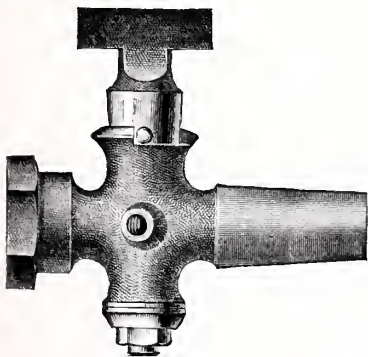


Fig. 649.

LEVER HANDLE.

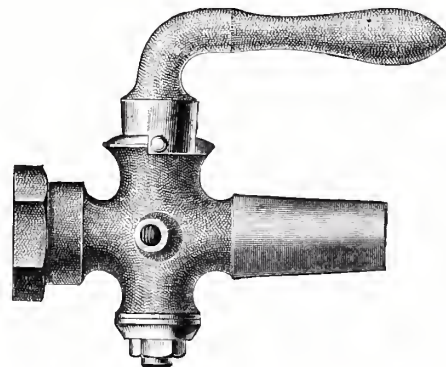


Fig. 650.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 649 and 650 . . . . . Per dozen.	\$8.50	10.50	13.50	17.00	21.50	31.50	51.00	125.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# ROUGH STOPS, NUT AND WASHER.

## CONTINUED.

FOR IRON PIPE.

TEE HANDLE.

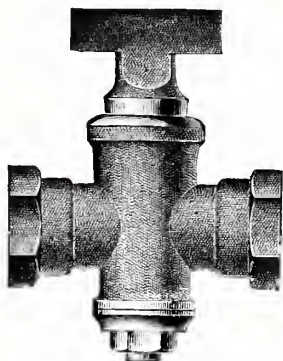


Fig. 651.

LEVER HANDLE.

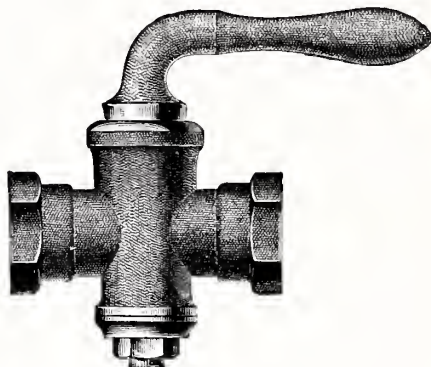


Fig. 652.

SIZE . . . . .	INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 651 and 652 . . . . .	Per dozen.	\$8.00	10.00	13.00	17.00	21.00	31.00	50.00	70.00	120.00

# ROUGH STOP AND WASTES, NUT AND WASHER.

## FOR IRON PIPE.

TEE HANDLE.

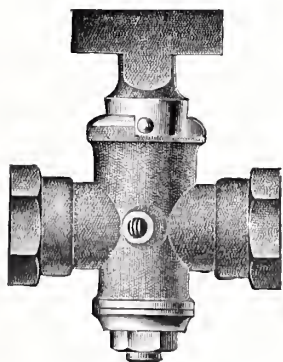


Fig. 653.

LEVER HANDLE.

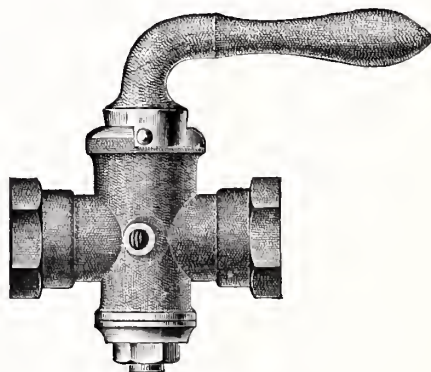


Fig. 654.

SIZE . . . . .	INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 653 and 654 . . . . .	Per dozen.	\$9.00	11.00	14.00	18.00	22.50	33.00	53.00	74.00	130.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# ROUND WAY ROUGH STOPS, NUT AND WASHER.

FOR LEAD PIPE.

TEE HANDLE.

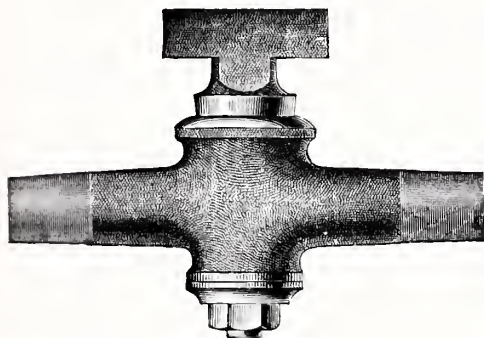


Fig. 655.

LEVER HANDLE.

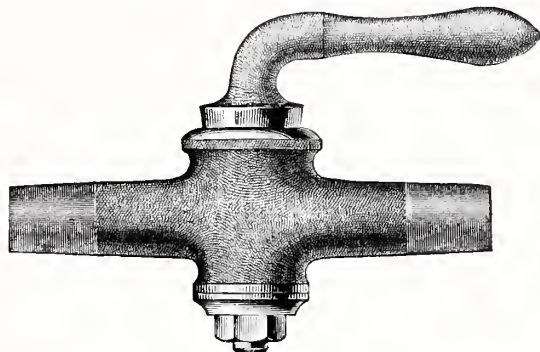


Fig. 656.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Figs. 655 and 656 . . . . . Per dozen.	\$15.00	17.00	20.00	25.00	44.00	70.00	100.00	180.00

# ROUND WAY ROUGH STOP AND WASTES, NUT AND WASHER.

FOR LEAD PIPE.

TEE HANDLE.

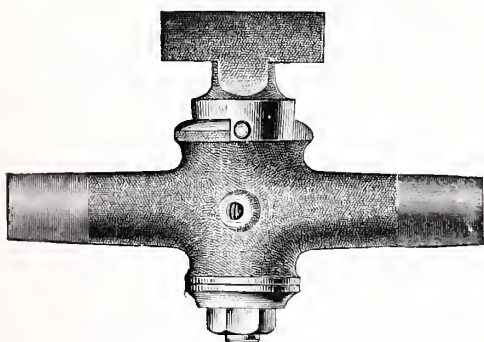


Fig. 657.

LEVER HANDLE.

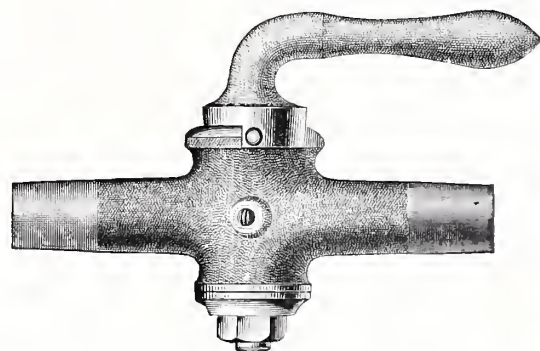


Fig. 658.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Figs. 657 and 658 . . . . . Per dozen.	\$16.00	18.00	21.00	26.50	46.00	73.00	104.00	190.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



# ROUND WAY ROUGH STOPS, NUT AND WASHER—CONTINUED.

FOR LEAD AND IRON PIPE.

TEE HANDLE.

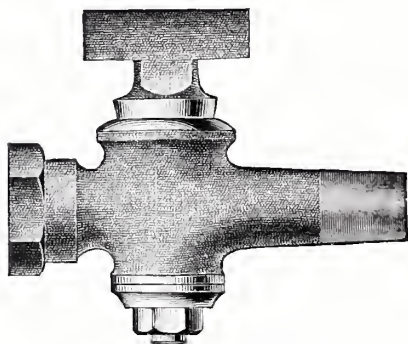


Fig. 659.

LEVER HANDLE.

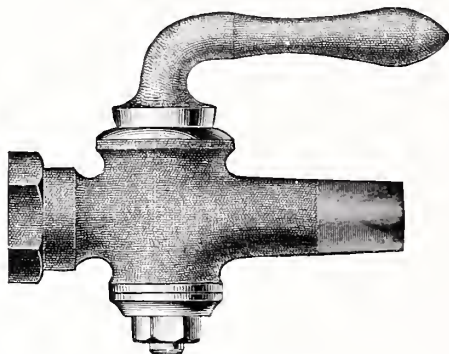


Fig. 660.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 659 and 660 . . . . . Per dozen.	\$15.50	17.50	21.00	26.00	45.50	72.00	103.00	185.00

## ROUND WAY ROUGH STOP AND WASTES, NUT AND WASHER.

FOR LEAD AND IRON PIPE.

TEE HANDLE.

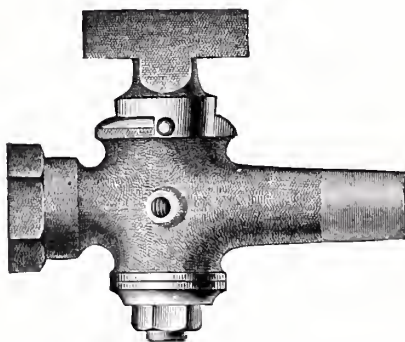


Fig. 661.

LEVER HANDLE.

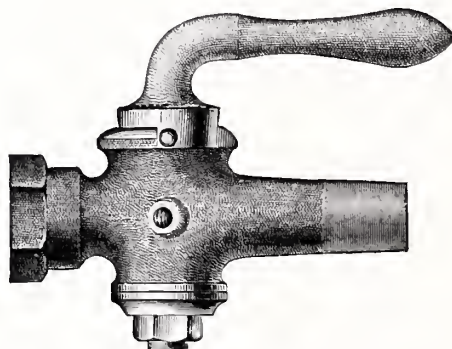


Fig. 662.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 661 and 662 . . . . . Per dozen.	\$16.50	18.50	22.00	27.50	47.50	75.00	107.00	195.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# ROUND WAY ROUGH STOPS, NUT AND WASHER—CONTINUED.

FOR IRON PIPE.

TEE HANDLE.

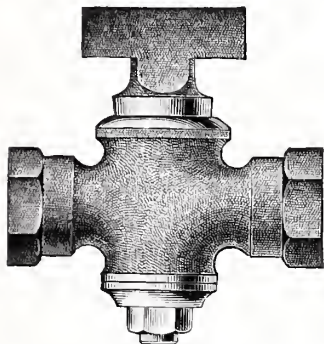


Fig. 663.

LEVER HANDLE.

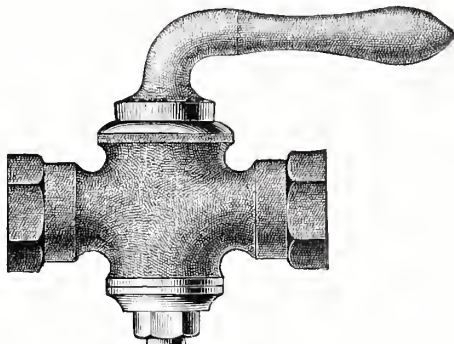


Fig. 664.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 663 and 664 . . . . Per dozen.	\$16.00	18.00	22.00	27.00	47.00	74.00	106.00	190.00

## ROUND WAY ROUGH STOP AND WASTES, NUT AND WASHER.

FOR IRON PIPE.

TEE HANDLE.

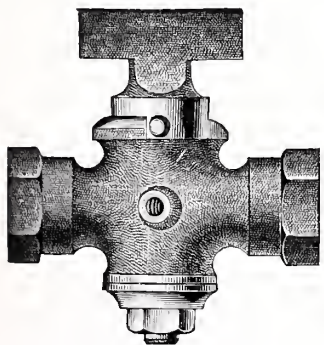


Fig. 665.

LEVER HANDLE.

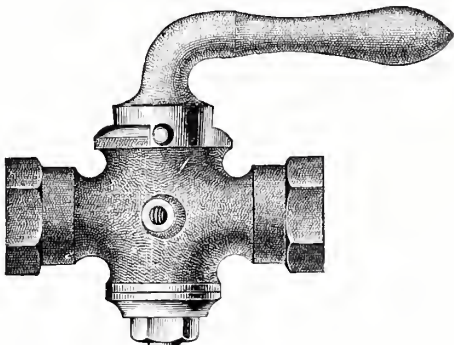


Fig. 666.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 665 and 666 . . . . Per dozen.	\$17.00	19.00	23.00	28.50	49.00	77.00	110.00	200.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

ROUND WAY ROUGH STOP, WITH  
PLAIN COUPLING.

FOR LEAD PIPE.

LEVER HANDLE.

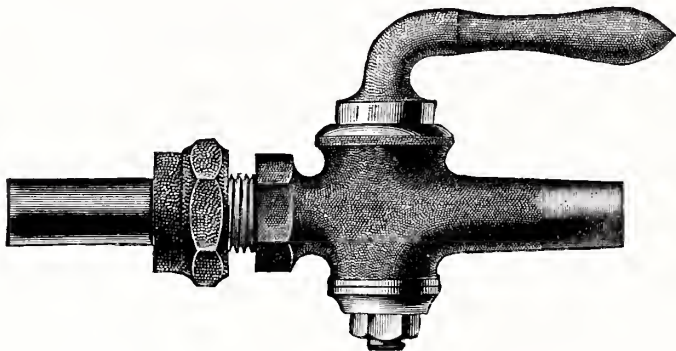


Fig. 667.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 667. . . . .	Per dozen.	\$23.00	27.00	34.50	56.00

FLAT WAY ROUGH STOP, WITH PLAIN COUPLING.

FOR LEAD PIPE.

LEVER HANDLE.

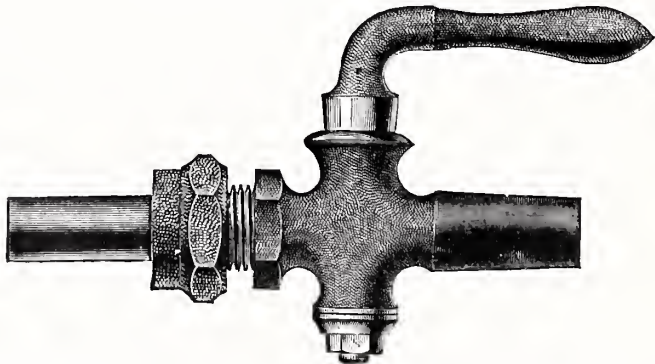


Fig. 668.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 668. Rough. . . . .	Per dozen.	\$17.00	21.00	27.00	38.00
" 668. Polished Brass. . . . .	"	21.00	25.00	34.00	50.00
" 668. Nickel Plated . . . . .	"	23.50	27.50	36.50	53.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# ROUND WAY ROUGH STOPS.

## NEWPORT PATTERN—FOR IRON PIPE.

TEE HANDLE.

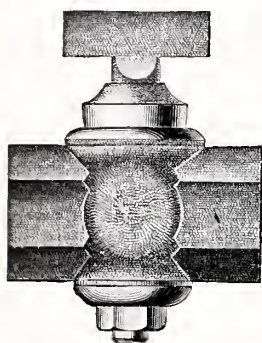


Fig. 669.

LEVER HANDLE.

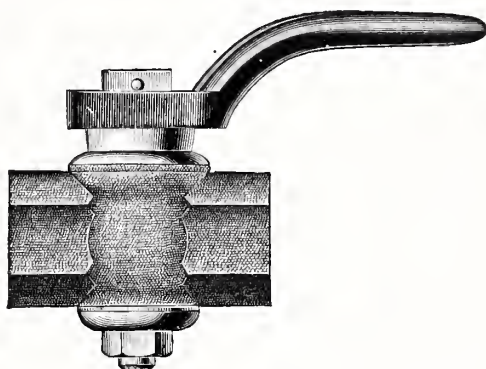


Fig. 670.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 669 and 670 . . . . . Per dozen.	\$15.00	20.00	40.00	65.00	90.00	160.00

# ROUND WAY ROUGH STOP AND WASTES.

## NEWPORT PATTERN—FOR IRON PIPE.

TEE HANDLE.

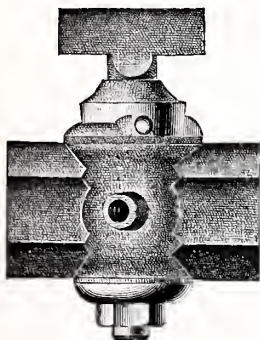


Fig. 671.

LEVER HANDLE.

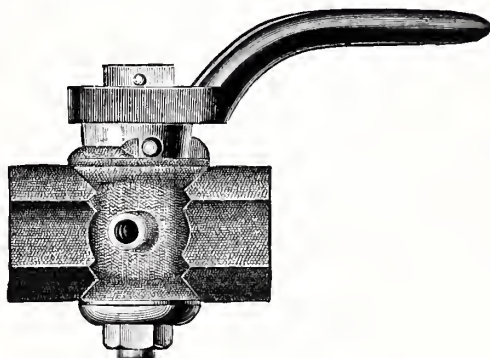


Fig. 672.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Figs. 671 and 672 . . . . . Per dozen.	\$16.00	21.50	42.00	68.00	94.00	170.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



ROUND WAY ROUGH HYDRANT COCKS.

FOR LEAD PIPE.

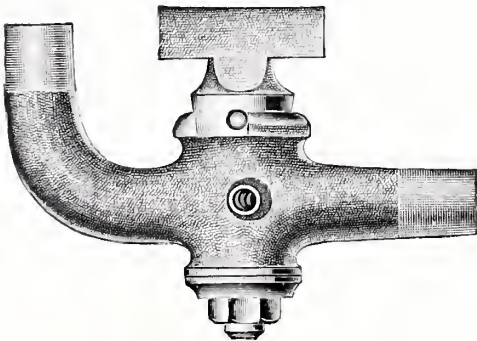


Fig. 673

FOR LEAD AND IRON PIPE.

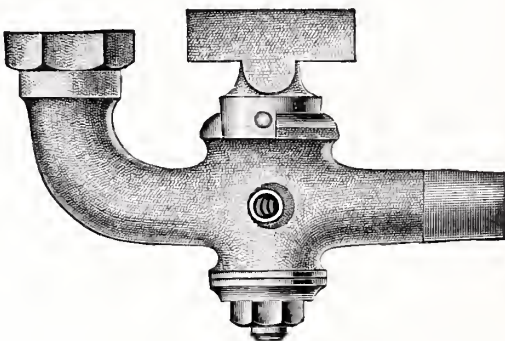


Fig. 674.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 673 . . . . . Per dozen.	\$18.00	21.00	26.50	46.00
" 674 . . . . . "	18.50	22.00	27.50	47.50
Iron Pipe Inside Screws . . . . . "	19.00	23.00	28.50	49.00
Iron Pipe Inside and Outside Screws . . . . . "	19.00	23.00	28.50	49.00

FLAT WAY ROUGH HYDRANT COCKS.

FOR IRON PIPE.

INSIDE SCREWS.

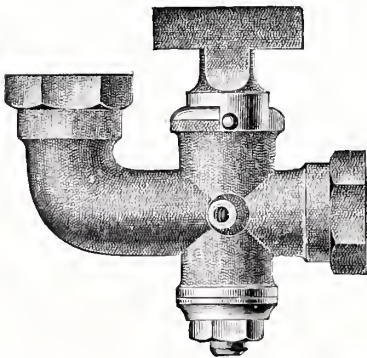


Fig. 675.

INSIDE AND OUTSIDE SCREWS.

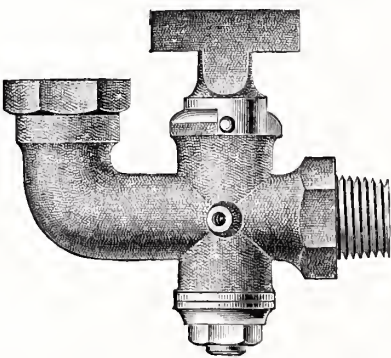


Fig. 676.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 675 . . . . . Per dozen.	\$15.00	18.50	23.00	36.00
" 676 . . . . . "	15.00	18.50	23.00	36.00

Unless otherwise ordered, Tee Head will be furnished.  
Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

“S. & W.” HYDRANT COCKS, SOCKET HEAD.

TEE HEAD.  
FOR LEAD PIPE.

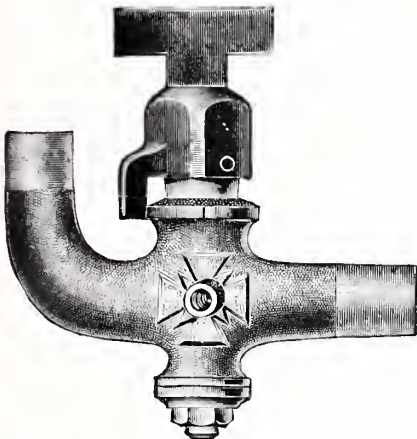


Fig. 677.

SOCKET HEAD.  
FOR LEAD AND IRON PIPE.

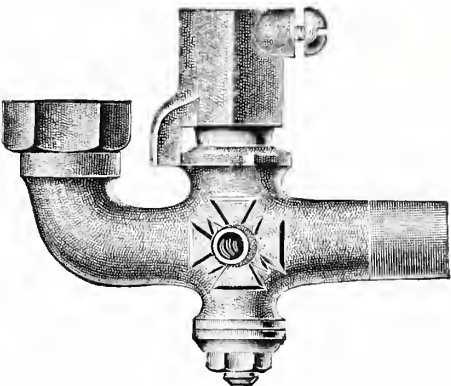


Fig. 678.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1
Fig. 677 . . . . .	Per dozen.	\$14.00	17.00	21.00	33.00
“ 678 . . . . .	“	14.50	18.00	22.00	34.50

FOR IRON PIPE.

TEE HEAD. INSIDE SCREWS.

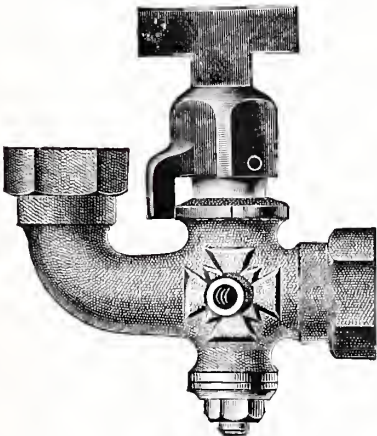


Fig. 679.

SOCKET HEAD.  
INSIDE AND OUTSIDE SCREWS.

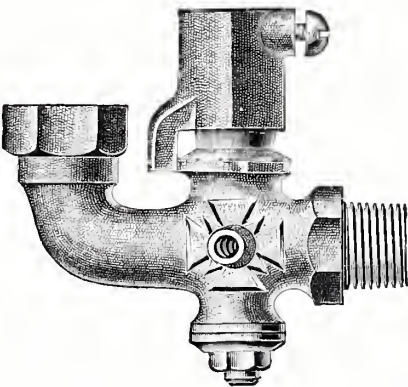


Fig. 680.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1
Fig. 679 . . . . .	Per dozen.	\$15.00	18.50	23.00	36.00
“ 680 . . . . .	“	15.00	18.50	23.00	36.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

Any of the above will be furnished with Tee or Socket Head.

“S. & W.” ROUGH STOPS, SOCKET HEAD.

STOP FOR LEAD PIPE.

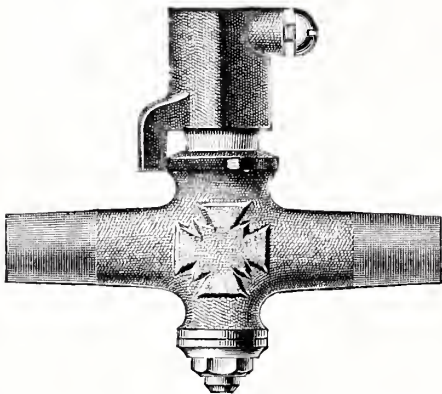


Fig. 681.

STOP AND WASTE FOR LEAD PIPE.

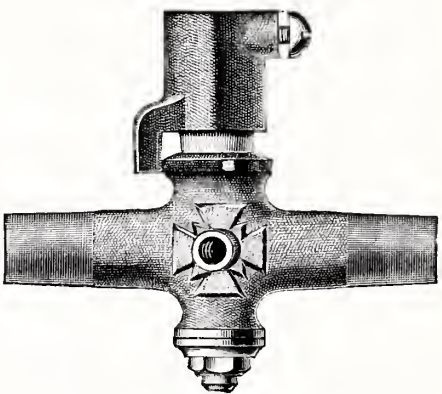


Fig. 682.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1
Fig. 681 . . . . . Per dozen.	\$12.00	15.00	19.00	28.00
“ 682 . . . . . “	13.00	16.00	20.50	30.00

STOP FOR LEAD AND IRON PIPE.

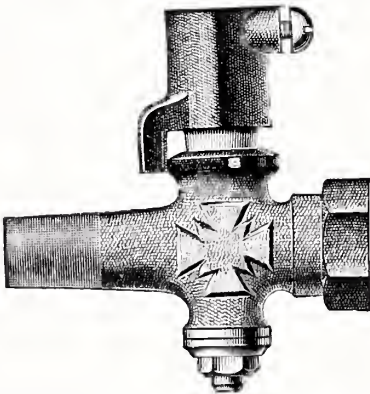


Fig. 683.

STOP AND WASTE FOR LEAD AND IRON PIPE.

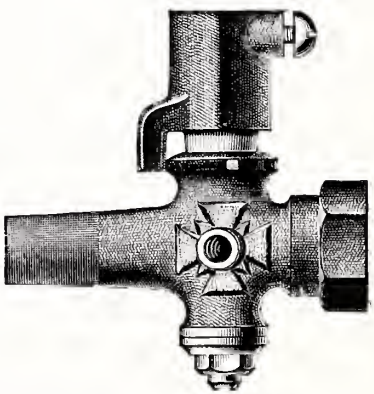


Fig. 684.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1
Fig. 683 . . . . . Per dozen.	\$12.50	16.00	20.00	29.50
“ 684 . . . . . “	13.50	17.00	21.50	31.50

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



# "S. & W." ROUGH STOPS, LEVER AND SOCKET HANDLE.

STOP FOR IRON PIPE.  
INSIDE SCREWS.

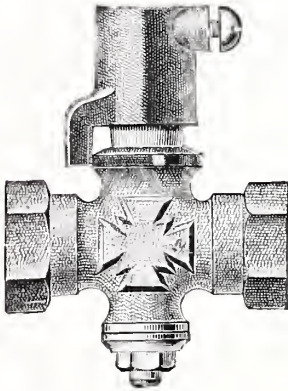


Fig. 685.

STOP AND WASTE FOR IRON PIPE.  
INSIDE SCREWS.

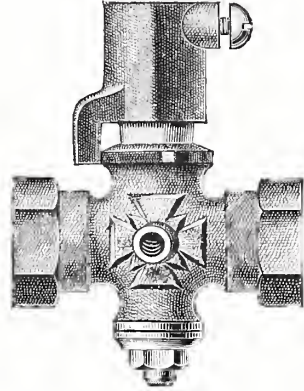


Fig. 686.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 685 . . . . . Per dozen.	\$13.00	17.00	21.00	31.00
" 686 . . . . . "	14.00	18.00	22.50	33.00

STOP FOR IRON PIPE.  
INSIDE SCREWS.

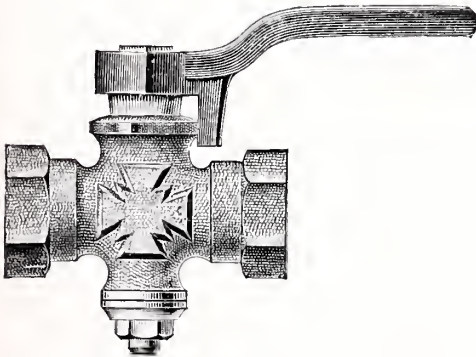


Fig. 687.

STOP AND WASTE FOR IRON PIPE.  
INSIDE SCREWS.

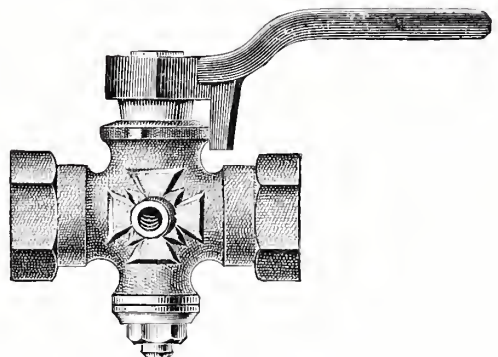


Fig. 688.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 687 . . . . . Per dozen.	\$13.00	17.00	21.00	31.00
" 688 . . . . . "	14.00	18.00	22.50	33.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



“S. & W.” ROUGH STOPS, LEVER  
HANDLE.

STOP FOR LEAD PIPE.

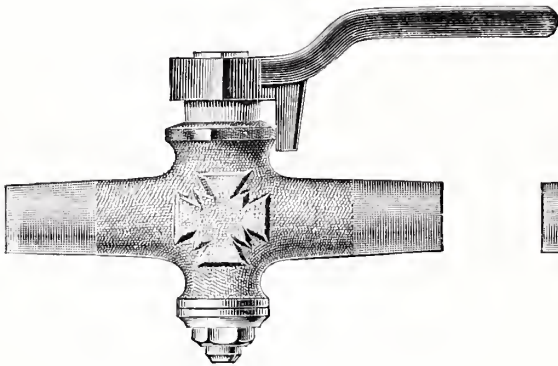


Fig. 689.

STOP AND WASTE FOR LEAD PIPE.

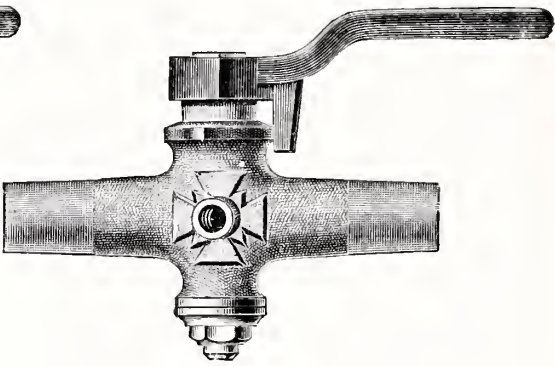


Fig. 690.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 689 . . . . . Per dozen.	\$12.00	15.00	19.00	28.00
“ 690 . . . . . “	13.00	16.00	20.50	30.00

STOP FOR LEAD AND IRON PIPE.  
INSIDE SCREW.

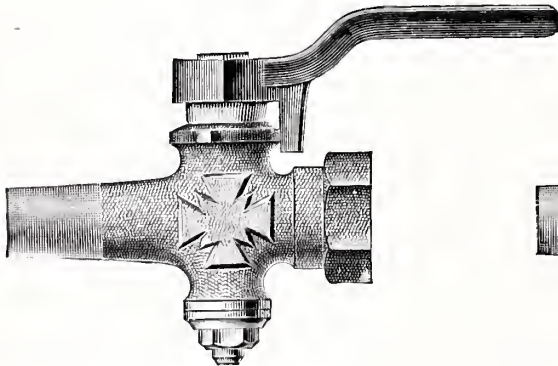


Fig. 691.

STOP AND WASTE FOR LEAD AND  
IRON PIPE. INSIDE SCREW.

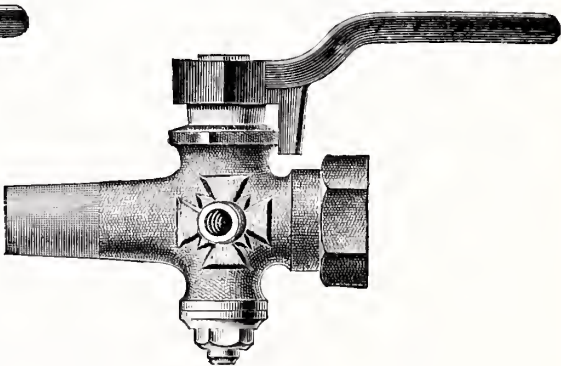


Fig. 692.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 691 . . . . . Per dozen.	\$12.50	16.00	20.00	29.50
“ 692 . . . . . “	13.50	17.00	21.50	31.50

All the above made with Socket Handle if desired.  
Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

CORPORATION STOPS.

FOR CEMENT PIPE.

FOR IRON PIPE. INSIDE SCREW.

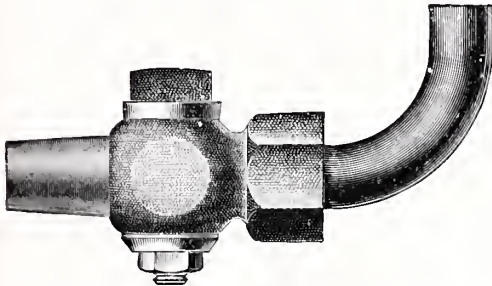


Fig. 693.

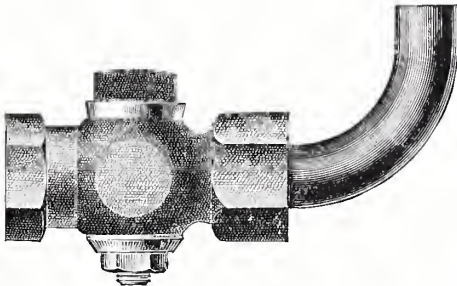


Fig. 694.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 693. . . . . Per dozen.	\$15.00	18.00	22.00	32.00	50.00	100.00	120.00	200.00
" 694. . . . . "	16.00	19.00	23.00	34.00	53.00	104.00	136.00	210.00

With Straight Tail, same List.

FOR IRON PIPE. OUTSIDE SCREW.

FOR PAYNE'S MACHINE.

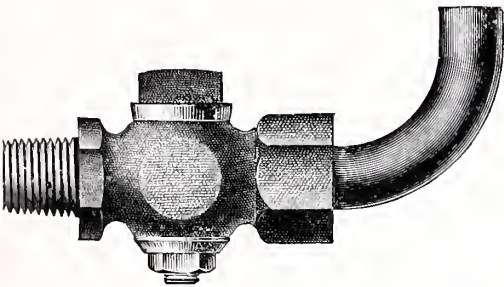


Fig. 695.

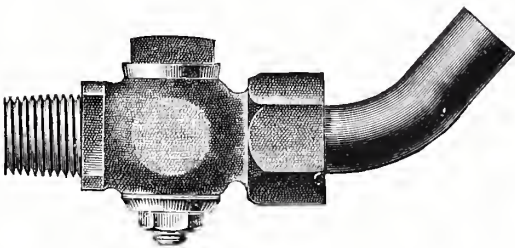
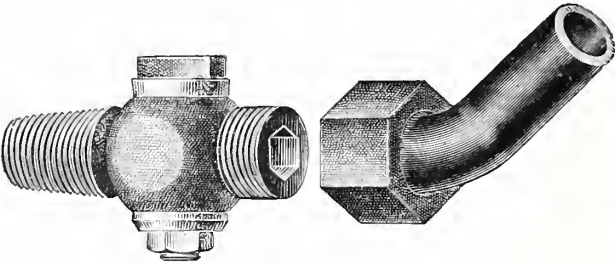


Fig. 696.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 695. . . . . Per dozen.	\$16.00	19.00	23.00	34.00	53.00	104.00	136.00	210.00
" 696. . . . . "	. .	19.00	23.00	34.00	53.00	104.00	. .	. .

With Straight Tail, same List.      Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

CORPORATION STOPS—CONTINUED.

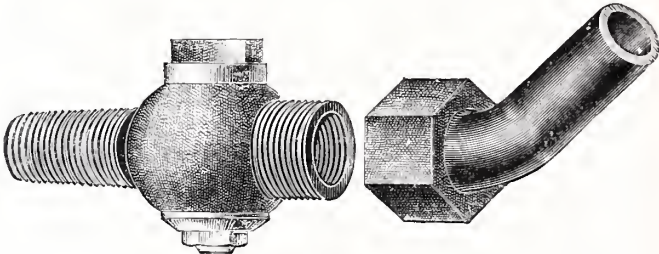


FOR MUELLER'S MACHINE.

Fig. 697.

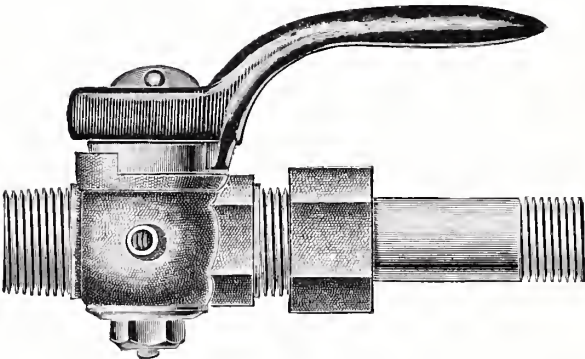
FOR HUBBELL'S MACHINE.

Fig. 698.



SIZE . . . . . INCHES.	$\frac{7}{8}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 697 . . . . . Per dozen.	\$14.40	16.20	20.40	30.00	46.20
" 698 . . . . . "	16.00	19.00	23.00	34.00	53.00

With Straight Tail use same List.  
Fig. 698 also used for Sperring's and The Boston Machine Company's Tapping Machine.

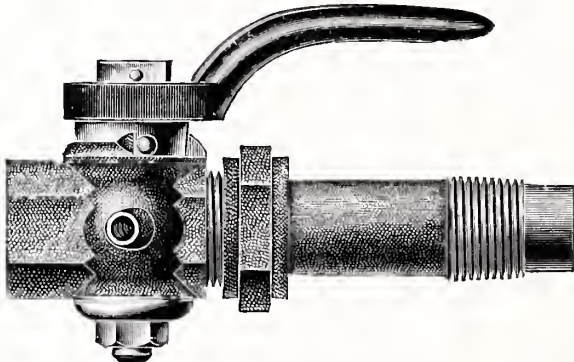


LOWELL SERVICE COCK.

Fig. 699.

FITCHBURG SERVICE COCK.

Fig. 700.



SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	SIZE . . . . . INCHES.	$\frac{3}{4}$	$\frac{3}{4} \times 1$	$1 \times 1\frac{1}{2}$
Fig. 699 . . . . . Per dozen.	\$24.00	36.00	Fig. 700 . . . Per dozen.	\$36.00	40.00	50.00

With Bent Tail use same List. Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# FINISHED LEVER HANDLE STOPS.

## PLAIN STOPS.

FOR LEAD PIPE.

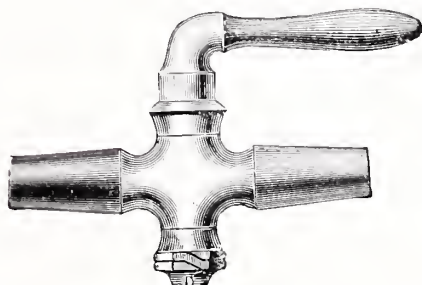


Fig. 701.

FOR IRON PIPE.

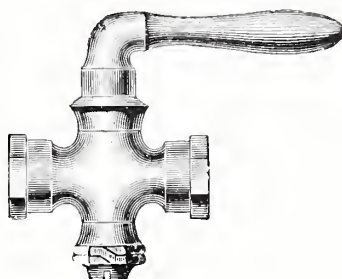


Fig. 702.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{1}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 701. Finished . . . . . Per dozen.	\$10.50	12.50	15.50	18.50	25.00	37.00	62.00	86.00	175.00
" 701. Nickel Plated . . . . . "	12.50	14.50	18.00	21.00	27.50	40.00	. . . . .	. . . . .	. . . . .
" 702. Finished . . . . . "	11.50	13.50	16.50	20.50	27.00	40.00	. . . . .	. . . . .	. . . . .
" 702. Nickel Plated . . . . . "	13.50	15.50	19.00	23.00	29.50	43.00	. . . . .	. . . . .	. . . . .

## SHOWER STOPS.

### TUBE WASTE.

FOR LEAD PIPE.

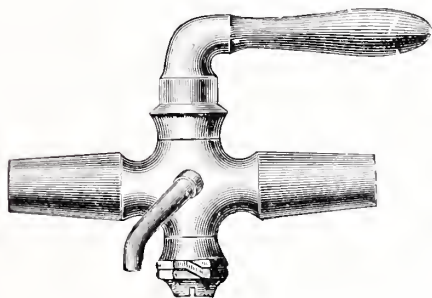


Fig. 703.

FOR IRON PIPE.

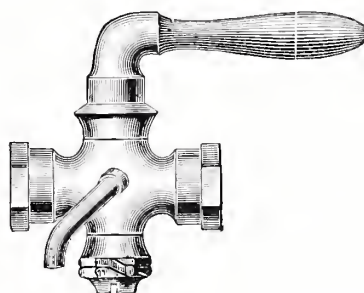


Fig. 704.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	1
Fig. 703. Finished . . . . . Per dozen.	\$14.00	17.00	20.00	27.00	40.00
" 703. Nickel Plated . . . . . "	16.00	19.50	22.50	29.50	43.00
" 704. Finished . . . . . "	15.00	18.00	22.00	29.00	43.00
" 704. Nickel Plated . . . . . "	17.00	20.50	24.50	31.50	46.00



LAGER BEER COOLER COCK.

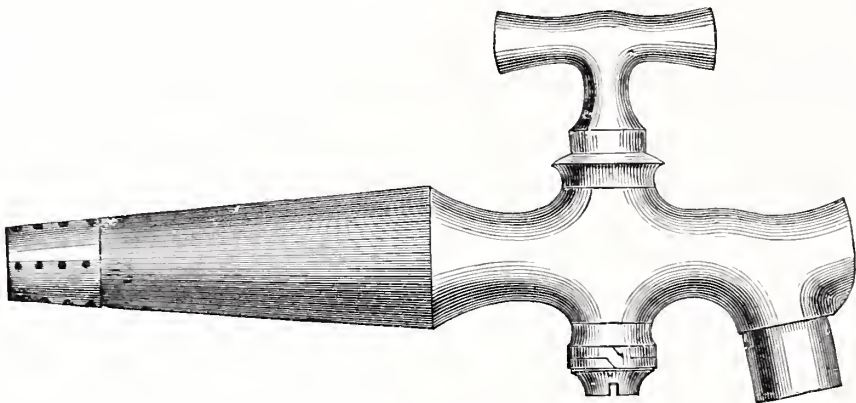


Fig. 705.

LENGTH . . . . . INCHES.	8½	10	12	14	16	18	20	22
Finished . . . . . Per dozen.	\$30.00	32.00	36.00	40.00	44.00	48.00	52.00	56.00

ROUGH ALE COCK.

EXTRA HEAVY.

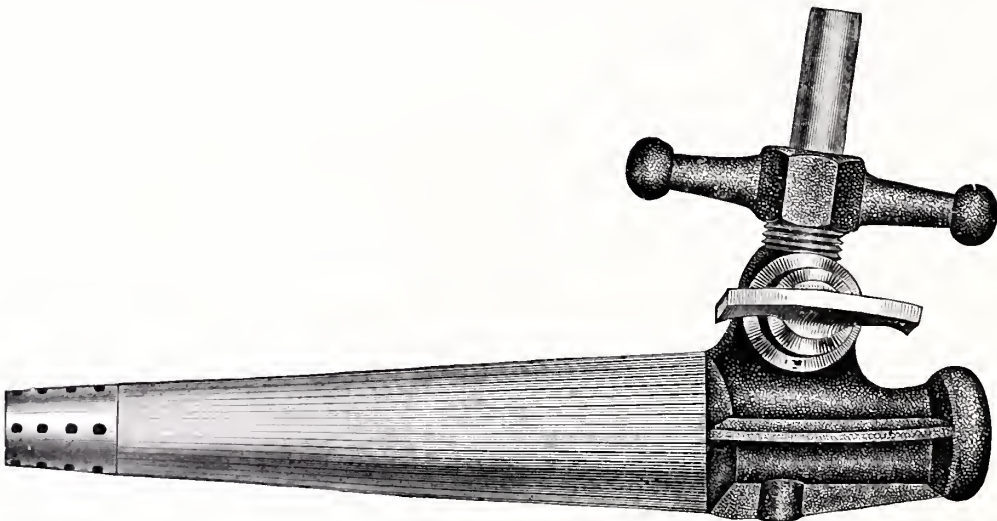


Fig. 706.

Per dozen . . . . .	\$36.00
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LEVER HANDLE BIBBS.

PLAIN BIBBS.

FOR LEAD PIPE.

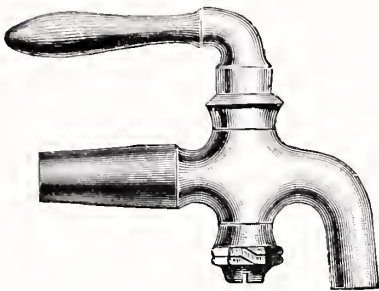


Fig. 707.

FOR IRON PIPE.

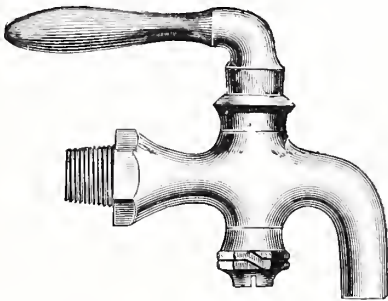


Fig. 708.

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Fig. 707. Rough. . . Per doz.	\$9.00	11.00	14.00	16.00	21.00	32.00	52.00	72.00	120.00	150.00
" 707. Finished. . . "	10.00	12.00	15.00	18.00	24.00	36.00	60.00	84.00	130.00	170.00
" 707. Nickel Plated "	12.00	14.00	17.50	20.50	26.50	39.00	. . .	. . .	. . .	. . .
" 708. Rough. . . "	10.00	12.00	15.00	17.00	23.00	35.00	56.00	78.00	. . .	160.00
" 708. Finished. . . "	11.00	13.00	16.00	19.00	26.00	39.00	64.00	90.00	. . .	180.00
" 708. Nickel Plated "	13.00	15.00	18.50	21.50	28.50	42.00	. . .	. . .	. . .	. . .

HOSE BIBBS.

FOR LEAD PIPE.

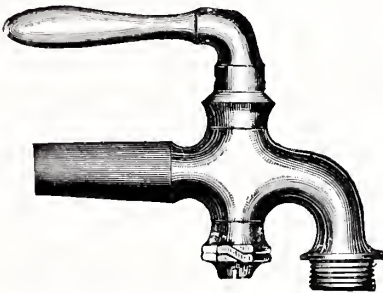


Fig. 709.

FOR IRON PIPE.

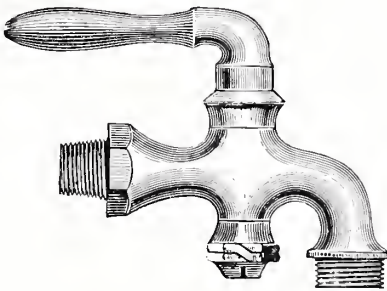


Fig. 710.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{7}{8}$	$\frac{1}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Fig. 709. Rough. . . Per doz.	\$15.00	17.00	23.00	35.00	56.00	78.00	130.00	160.00
" 709. Finished. . . "	16.00	19.00	26.00	39.00	64.00	90.00	140.00	180.00
" 709. Nickel Plated "	18.50	21.50	28.50	42.00	. . .	. . .	. . .	. . .
" 710. Rough. . . "	16.00	18.00	25.00	38.00	60.00	84.00	. . .	170.00
" 710. Finished. . . "	17.00	20.00	28.00	42.00	68.00	96.00	. . .	190.00
" 710. Nickel Plated "	19.50	22.50	30.50	45.00	. . .	. . .	. . .	. . .

FINISHED COMPRESSION WASH  
TRAY BIBBS.

FLANGE AND THIMBLE.

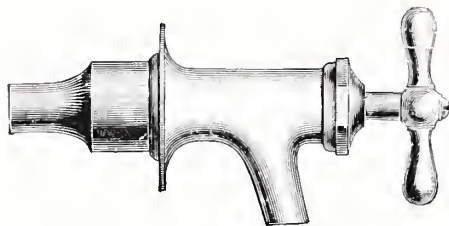


Fig. 711.

FLANGE, NUT AND COUPLING.

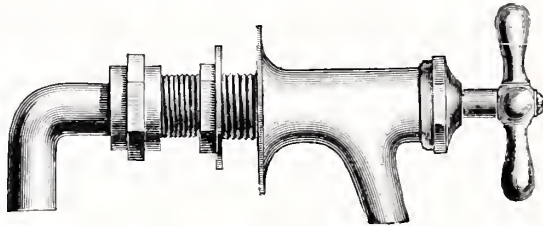


Fig. 712.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 711. Finished . . . . . Per dozen.	\$19.00	22.00	30.00	53.00
" 711. Nickel Plated . . . . . "	22.50	25.50	34.00	57.00
" 712. Finished . . . . . "	26.00	33.00	46.00	. .
" 712. Nickel Plated . . . . . "	29.50	36.50	50.00	. . .

FOR LEAD PIPE.

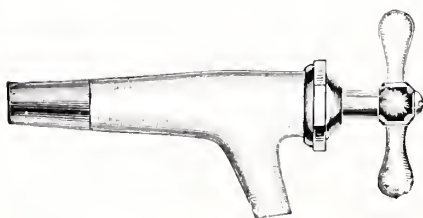


Fig. 713.

FOR IRON PIPE.

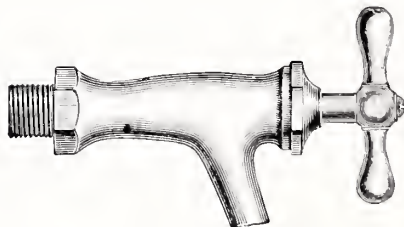


Fig. 714.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 713. Finished . . . . . Per dozen.	\$11.00	13.00	19.00	36.00
" 713. Nickel Plated . . . . . "	13.50	15.50	21.50	39.00
" 714. Finished . . . . . "	12.00	14.00	21.00	39.00
" 714. Nickel Plated . . . . . "	14.50	16.50	23.50	42.00

FINISHED COMPRESSION BATH BIBBS.

FLANGE, NUT AND BENT COUPLING.

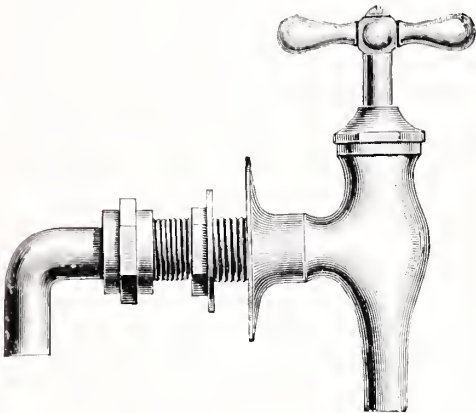


Fig. 715.

FLANGE AND THIMBLE.

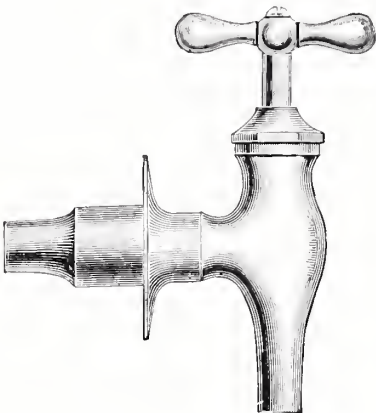


Fig. 716.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 715. Finished . . . . . Per dozen.	\$29.00	37.00	52.00	. . .
" 715. Nickel Plated . . . . . "	32.50	40.50	57.00	. . .
" 716. Finished . . . . . "	22.00	26.00	36.00	59.00
" 716. Nickel Plated . . . . . "	25.50	29.50	40.00	63.00

FOR LEAD PIPE.

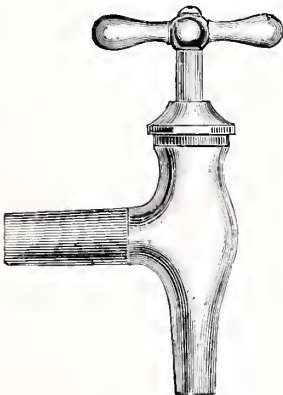


Fig. 717.

FOR IRON PIPE.

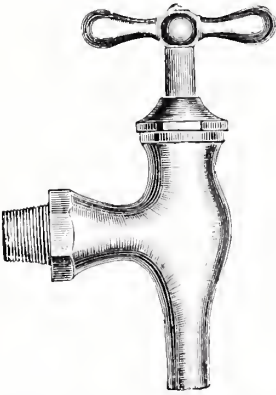


Fig. 718.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 717. Finished . . . . . Per dozen.	\$14.00	17.00	26.00	42.00
" 717. Nickel Plated . . . . . "	16.50	19.50	28.50	45.00
" 718. Finished . . . . . "	15.00	18.00	28.00	45.00
" 718. Nickel Plated . . . . . "	17.50	20.50	30.50	48.00



FINISHED COMPRESSION BIBBS.

GRUNDY PATTERN—FOR LEAD PIPE.

PLAIN.

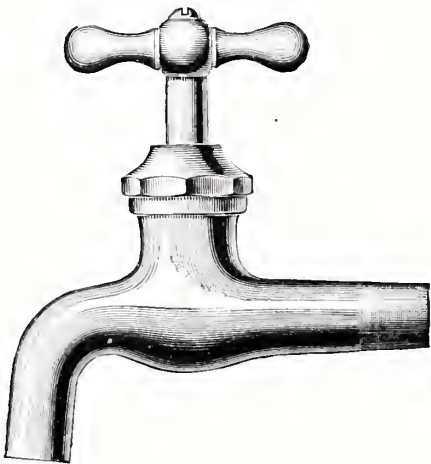


Fig. 719.

HOSE.

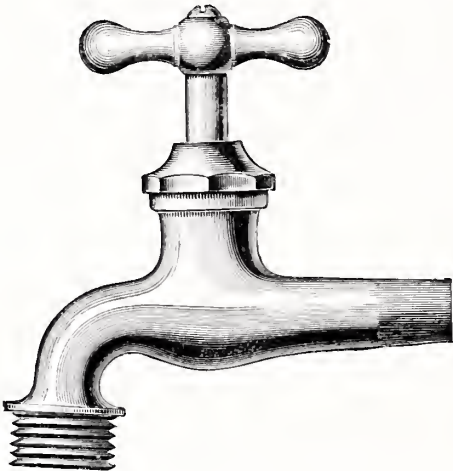


Fig. 720.

SIZE.		INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 719.	Polished Brass . . .	Per doz.	\$9.00	10.00	12.00	18.00	34.00	52.00	80.00	160.00
" 719.	Nickel Plated. . . .	"	11.00	12.50	14.50	20.50	37.00	. . .	. . .	. . .
" 720.	Polished Brass . . .	"	10.00	11.00	13.00	20.00	37.00	56.00	86.00	170.00
" 720.	Nickel Plated. . . .	"	12.00	13.50	15.50	22.50	40.00	. . .	. . .	. . .

FOR IRON PIPE, WITH SHOULDER.

PLAIN.

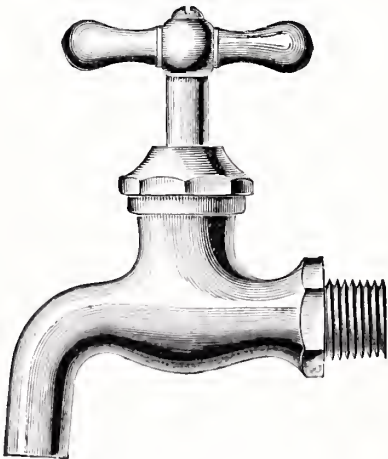


Fig. 721.

HOSE.

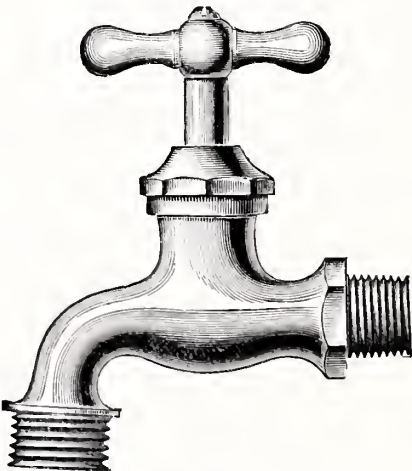


Fig. 722.

SIZE.		INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 721.	Polished Brass . . .	Per doz.	\$10.00	11.00	13.00	20.00	37.00	56.00	86.00	170.00
" 721.	Nickel Plated. . . .	"	12.00	13.50	15.50	22.50	40.00	. . .	. . .	. . .
" 722.	Polished Brass . . .	"	11.00	12.00	14.00	22.00	40.00	60.00	92.00	180.00
" 722.	Nickel Plated. . . .	"	13.00	14.50	16.50	24.50	43.00	. . .	. . .	. . .

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# FINISHED COMPRESSION BIBBS—CONTINUED.

## GRUNDY PATTERN.

FOR IRON PIPE, WITHOUT SHOULDER.

PLAIN.

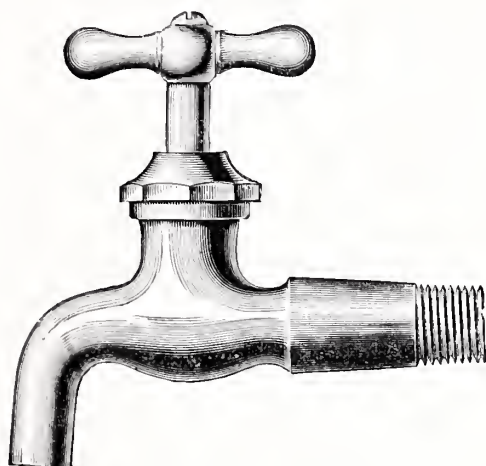


Fig. 723.

HOSE.

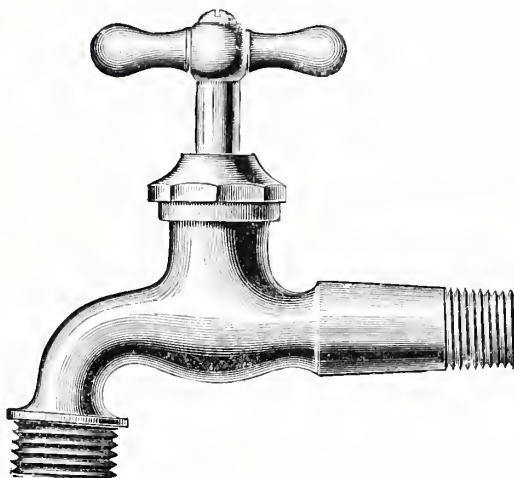


Fig. 724.

SIZE	INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 723. Polished Brass . . . . .	Per doz.	\$10.00	11.00	13.00	20.00	37.00	56.00	86.00	170.00
" 723. Nickel Plated . . . . .	"	12.00	13.50	15.50	22.50	40.00	. . . . .	. . . . .	. . . . .
" 724. Polished Brass . . . . .	"	11.00	12.00	14.00	22.00	40.00	60.00	92.00	180.00
" 724. Nickel Plated . . . . .	"	13.00	14.50	16.50	24.50	43.00	. . . . .	. . . . .	. . . . .

FOR IRON PIPE, FLANGE AND INSIDE SCREW.

PLAIN.

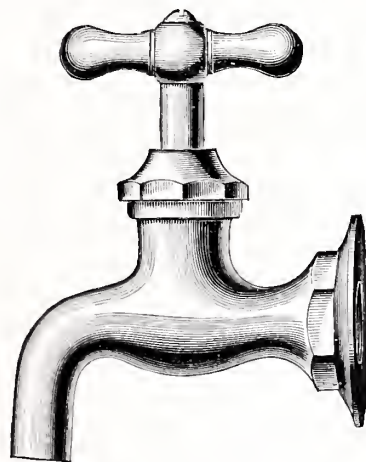


Fig. 725.

HOSE.

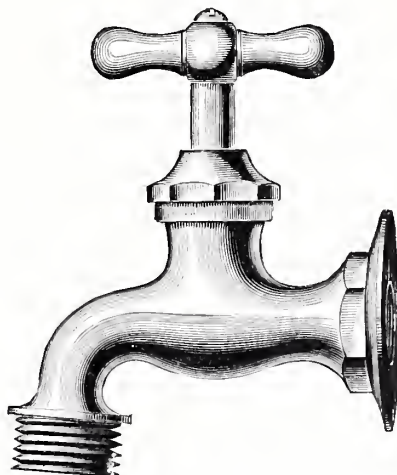


Fig. 726.

SIZE	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{1}$
Fig. 725. Polished Brass . . . . .	Per dozen.	\$16.00	18.50	25.00
" 725. Nickel Plated . . . . .	"	18.50	21.00	27.50
" 726. Polished Brass . . . . .	"	17.00	19.50	27.00
" 726. Nickel Plated . . . . .	"	19.50	22.00	29.50

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

FINISHED COMPRESSION BIBBS—CONTINUED.

GRUNDY PATTERN.

FOR IRON PIPE, FLANGE AND OUTSIDE SCREW.

PLAIN.

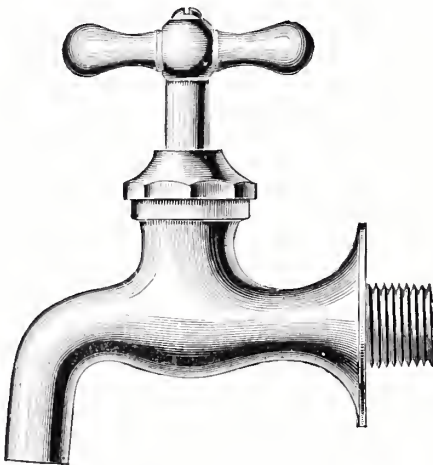


Fig. 727.

HOSE.

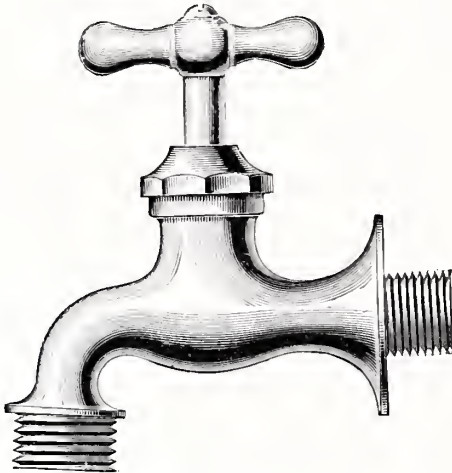


Fig. 728.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Fig. 727. Polished Brass . . . . .	Per dozen.	\$16.00	18.50	25.00
" 727. Nickel Plated . . . . .	"	18.50	21.00	27.50
" 728. Polished Brass . . . . .	"	17.00	19.50	27.00
" 728. Nickel Plated . . . . .	"	19.50	22.00	29.50

FLANGE AND THIMBLE.

PLAIN.

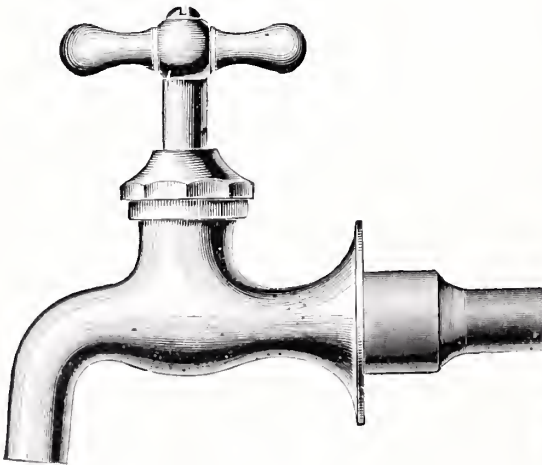


Fig. 729.

HOSE.

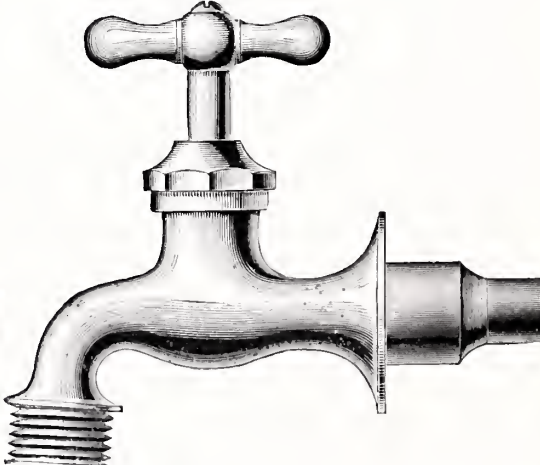


Fig. 730.

SIZE . . . . .	INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	1	$1\frac{1}{4}$
Fig. 729. Polished Brass . . . . .	Per dozen.	\$16.00	18.00	21.00	28.00	51.00
" 729. Nickel Plated . . . . .	"	19.00	21.50	24.50	32.00	55.00
" 730. Polished Brass . . . . .	"	17.00	19.00	22.00	30.00	54.00
" 730. Nickel Plated . . . . .	"	20.00	22.50	25.50	34.00	58.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

## FINISHED COMPRESSION BIBBS—CONTINUED.

## GRUNDY PATTERN.

## FLANGE, NUT AND BENT COUPLING.

## PLAIN.

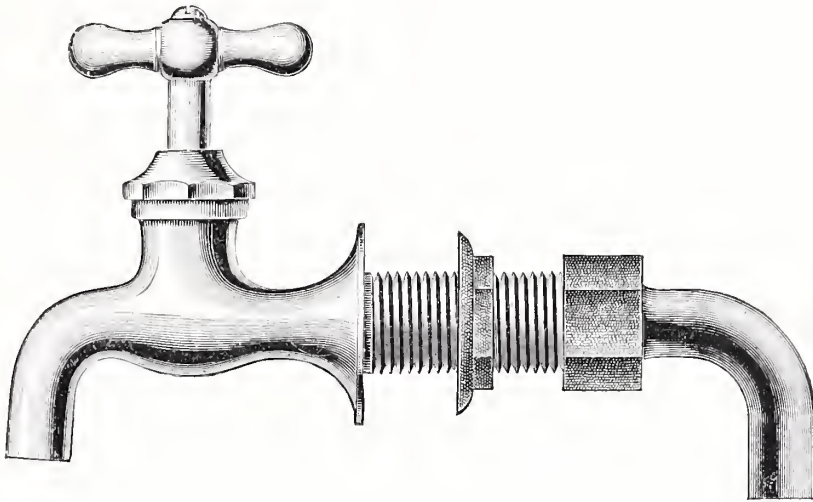


Fig. 731.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Fig. 731. Polished Brass . . . . .	Per dozen.	\$25.00	32.00	44.00
" 731. Nickel Plated . . . . .	"	28.50	35.50	48.00

## HOSE.

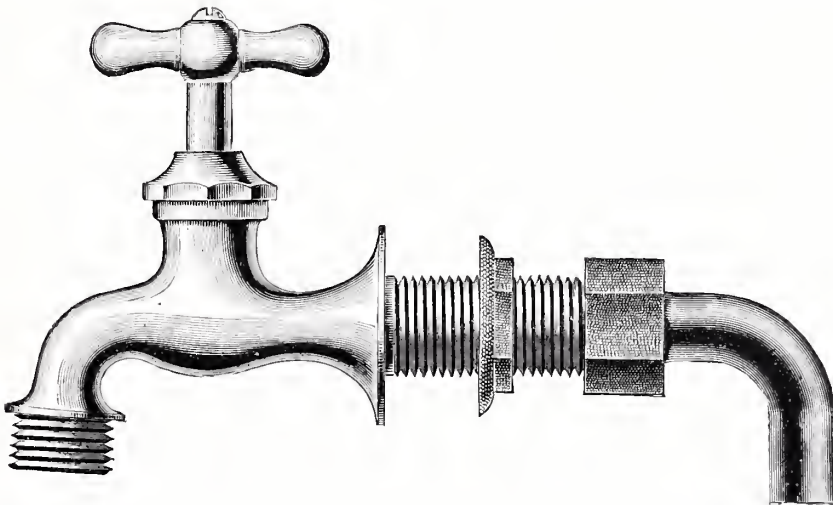


Fig. 732.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Fig. 732. Polished Brass . . . . .	Per dozen.	\$26.00	33.00	46.00
" 732. Nickel Plated . . . . .	"	29.50	36.50	50.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



FINISHED COMPRESSION BIBBS—CONTINUED.  
GRUNDY PATTERN.

FOR LEAD PIPE, WITH DETACHABLE SHANK.

PLAIN.

HOSE.

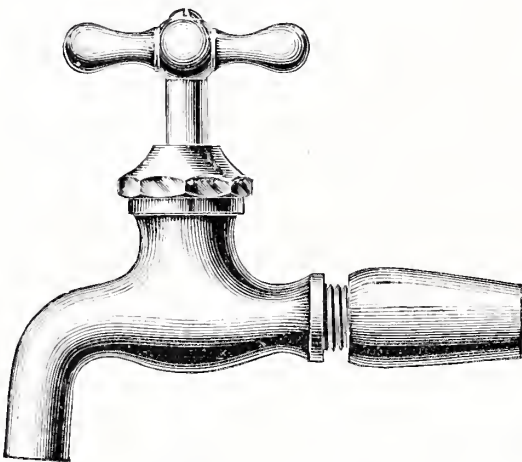


Fig. 733.

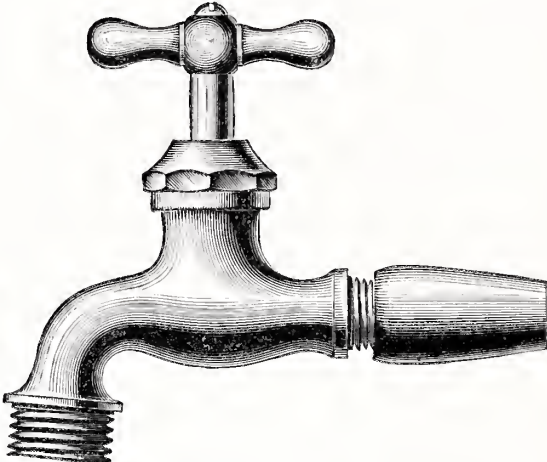


Fig. 734.

SIZE. . . . . INCHES.			$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$
Fig. 733.	Polished Brass . . . . .	Per dozen.	\$15.00	17.00	23.00
" 733.	Nickel Plated . . . . .	"	17.50	19.50	25.50
" 734.	Polished Brass . . . . .	"	16.00	18.00	25.00
" 734.	Nickel Plated . . . . .	"	18.50	20.50	27.50

COMPRESSION STOPS.

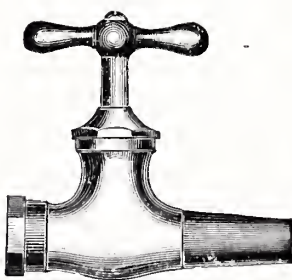


Fig. 735.

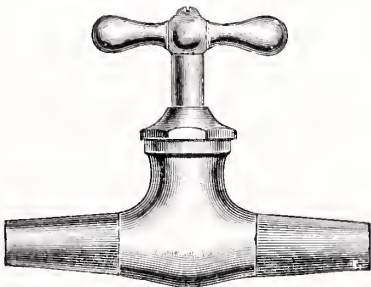


Fig. 736.

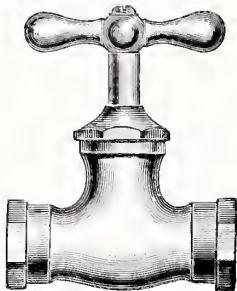


Fig. 737.

SIZE . . . . . INCHES.			$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Fig. 735.	Rough . . . . .	Per dozen.	\$10.00	11.00	13.00	19.50	33.50	. .	. .
" 735.	Finished . . . . .	"	10.50	11.50	14.00	20.50	37.50	. .	. .
" 735.	Nickel Plated . . . . .	"	12.50	14.00	16.50	23.00	40.00	. .	. .
" 736.	Rough . . . . .	"	9.50	10.50	12.00	18.50	32.00	48.00	84.00
" 736.	Finished . . . . .	"	10.00	11.00	13.00	19.50	36.00	56.00	96.00
" 736.	Nickel Plated . . . . .	"	12.00	13.50	15.50	22.00	39.00	. .	. .
" 737.	Rough . . . . .	"	10.50	11.50	14.00	20.50	35.00	52.00	90.00
" 737.	Finished . . . . .	"	11.00	12.00	15.00	21.50	39.00	60.00	102.00
" 737.	Nickel Plated . . . . .	"	13.00	14.50	17.50	24.00	42.00	. .	. .

Add for Waste \$1.00 per dozen, List.

COMPRESSION URINAL COCKS.

FOR LEAD PIPE.

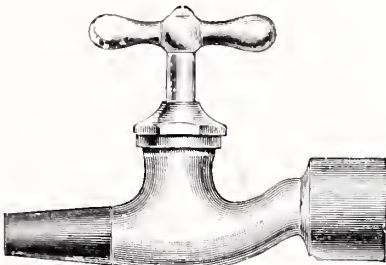


Fig. 738.

FOR IRON PIPE.

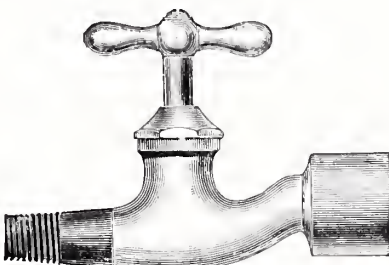


Fig. 739.

SIZE . . . . . INCHES.		$\frac{1}{2}$	$\frac{3}{4}$
Fig. 738.	Finished . . . . . Per dozen.	\$18.00	20.00
" 738.	Nickel Plated . . . . . "	21.00	23.00
" 739.	Finished . . . . . "	19.00	21.00
" 739.	Nickel Plated . . . . . "	22.00	24.00

FLANGE AND THIMBLE.

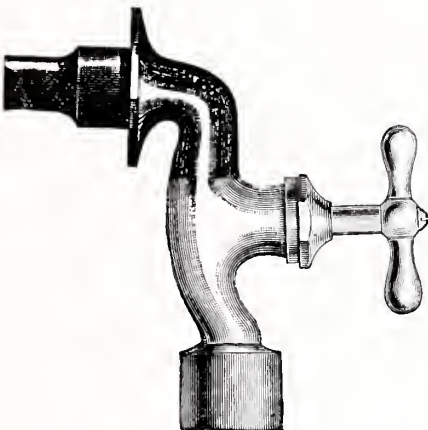


Fig. 740.

FLANGE, NUT AND BENT COUPLING.

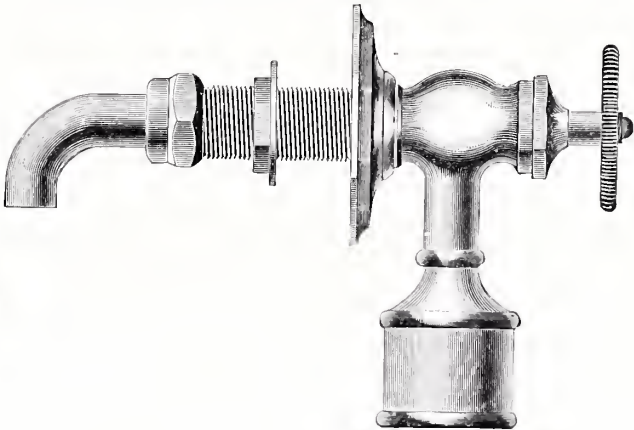


Fig. 741.

Fig. 740.	Finished . . . . .	Per dozen.	\$27.00
740.	Nickel Plated . . . . .	"	33.00
741.	Finished . . . . .	"	36.00
" 741.	Nickel Plated . . . . .	"	40.00

SELF-CLOSING PLAIN BIBBS.

TELEGRAPH HANDLE, FOR LEAD PIPE.

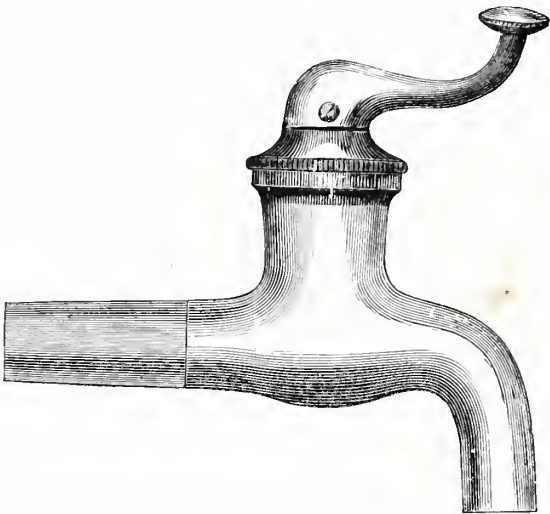


Fig. 742.

SIZE . . . . .	INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Finished . . . . .	Per dozen.	\$15.00	17.00	20.00	26.00
Nickel Plated . . . . .	"	17.00	19.50	22.50	28.50
Silver Plated . . . . .	"	23.00	26.00	32.00	41.00

FOR IRON PIPE, WITH SHOULDER.

SIZE . . . . .	INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Finished . . . . .	Per dozen.	\$16.00	18.00	21.00	28.00
Nickel Plated . . . . .	"	18.00	20.50	23.50	30.50
Silver Plated . . . . .	"	24.00	27.00	33.00	43.00

FLANGE AND THIMBLE.

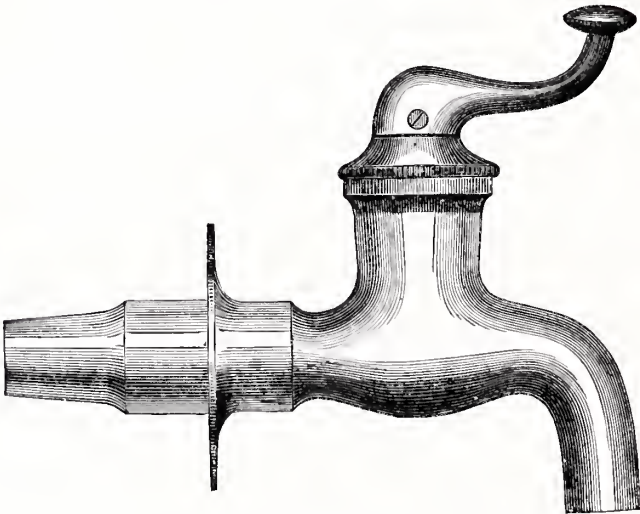


Fig. 743.

SIZE . . . . .	INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Finished . . . . .	Per dozen.	\$22.00	26.00	30.00	42.00
Nickel Plated . . . . .	"	24.00	28.50	32.50	44.50
Silver Plated . . . . .	"	30.00	35.00	42.00	57.00

BOSTON SELF-CLOSING WORK.

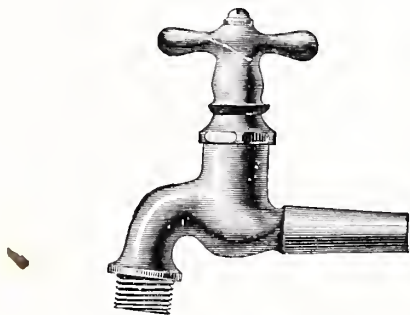


Fig. 744.

SELF-CLOSING PLAIN BIBBS.

FOR LEAD PIPE.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Finished . . . . .	Per dozen.	\$24.00	27.00	33.00	72.00
Nickel Plated . . . . .	"	28.00	31.00	38.00	. . .
Silver " . . . . .	"	36.00	42.00	51.00	. . .

FLANGE AND THIMBLE.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Finished . . . . .	Per dozen.	\$36.00	39.00	47.00
Nickel Plated . . . . .	"	40.00	43.00	51.00
Silver " . . . . .	"	48.00	54.00	65.00
Add for Hose End . . . . .	"	4.00	4.00	4.00

FOR IRON PIPE.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Finished . . . . .	Per dozen.	\$28.00	31.00	37.00	78.00
Nickel Plated . . . . .	"	32.00	35.00	42.00	. . .
Silver " . . . . .	"	40.00	46.00	55.00	. . .

SELF-CLOSING HOSE BIBBS.

FOR LEAD PIPE.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Finished . . . . .	Per dozen.	\$27.00	30.00	35.00
Nickel Plated . . . . .	"	31.00	34.00	40.00
Silver " . . . . .	"	39.00	45.00	53.00

FOR IRON PIPE.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Finished . . . . .	Per dozen.	\$31.00	34.00	39.00
Nickel Plated . . . . .	"	35.00	38.00	44.00
Silver " . . . . .	"	43.00	49.00	57.00



# DOHERTY SELF-CLOSING BIBBS.

FOR LEAD PIPE.

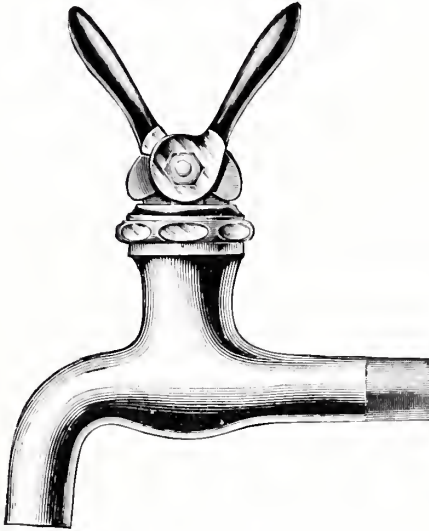


Fig. 745.

FOR IRON PIPE, WITH SHOULDER.

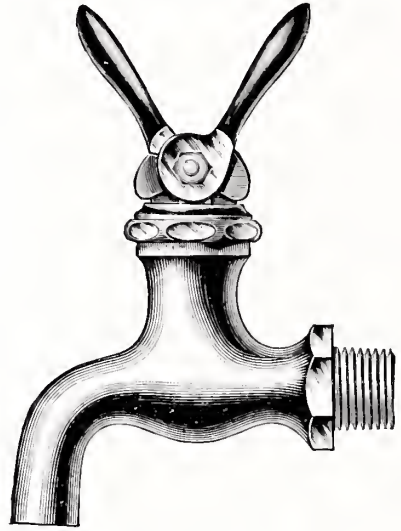


Fig. 746.

SIZE		INCHES.	$\frac{1}{2}$	$\frac{5}{8}$
Fig. 745.	Polished Brass	Per dozen.	\$24.00	27.00
"	Nickel Plated	"	37.50	40.00
"	746. Polished Brass	"	27.00	30.00
"	746. Nickel Plated	"	40.00	45.00
Add for Hose End		"	4.00	4.00

FOR IRON PIPE.

WITHOUT SHOULDER.

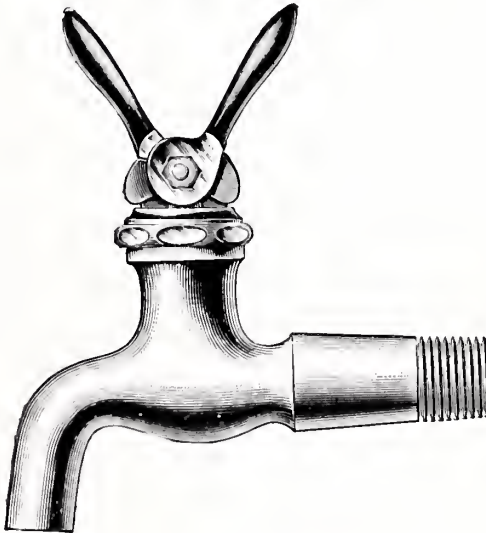


Fig. 747.

FLANGE AND INSIDE SCREW.

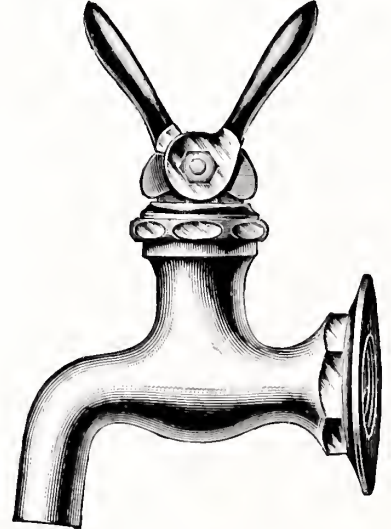


Fig. 748.

SIZE		INCHES.	$\frac{1}{2}$	$\frac{5}{8}$
Fig. 747.	Polished Brass	Per dozen.	\$27.00	30.00
"	Nickel Plated	"	40.00	45.00
"	748. Polished Brass	"	31.50	35.00
"	748. Nickel Plated	"	45.50	49.50
Add for Hose End		"	4.00	4.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# DOHERTY SELF-CLOSING BIBBS.

CONTINUED.

FLANGE AND OUTSIDE SCREW.

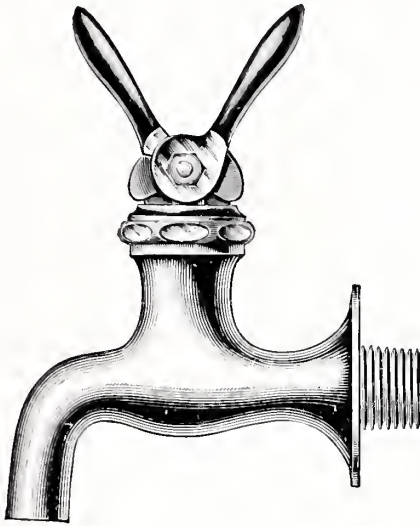


Fig. 749.

FLANGE AND THIMBLE.

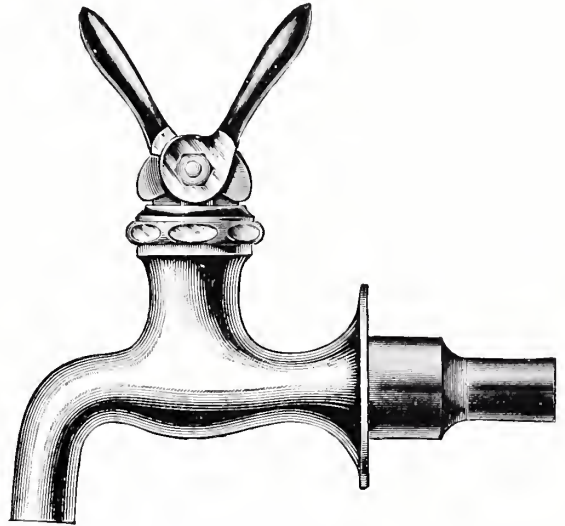


Fig. 750.

SIZE . . .		INCHES.		
Fig. 749.	Polished Brass . . . . .	Per dozen.	$\frac{1}{2}$ \$31.50	$\frac{3}{4}$ 35.00
" 749.	Nickel Plated . . . . .	"	45.50	49.50
" 750.	Polished Brass . . . . .	"	34.00	37.50
" 750.	Nickel Plated . . . . .	"	48.00	52.00
Add for Hose End . . . . .		"	4.00	4.00

FLANGE, NUT AND BENT COUPLING.

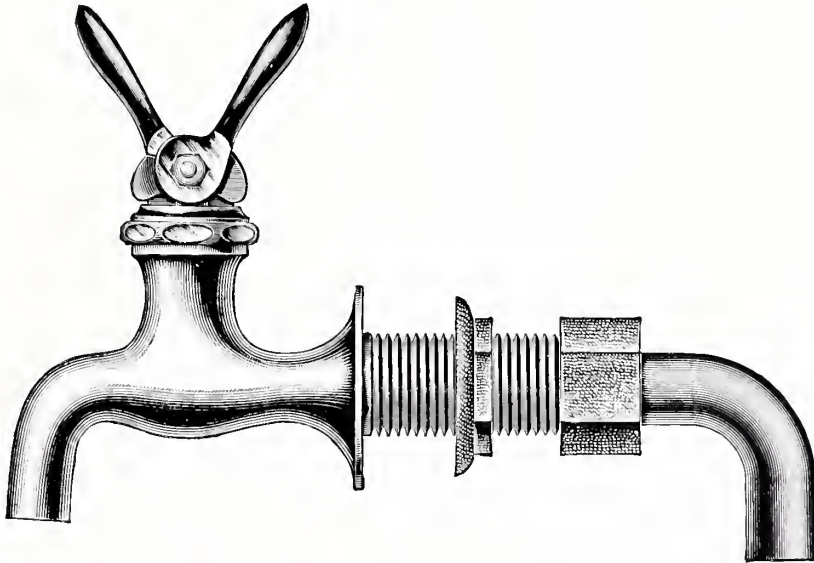


Fig. 751.

SIZE . . .		INCHES.		
Fig. 751	Polished Brass . . . . .	Per dozen.	$\frac{1}{2}$ \$43.00	$\frac{3}{4}$ 46.50
" 751.	Nickel Plated . . . . .	"	57.00	61.50
Add for Hose End . . . . .		"	4.00	4.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

SELF-CLOSING URINAL COCKS.

DOHERTY PATTERN.

FLANGE, NUT AND BENT COUPLING.

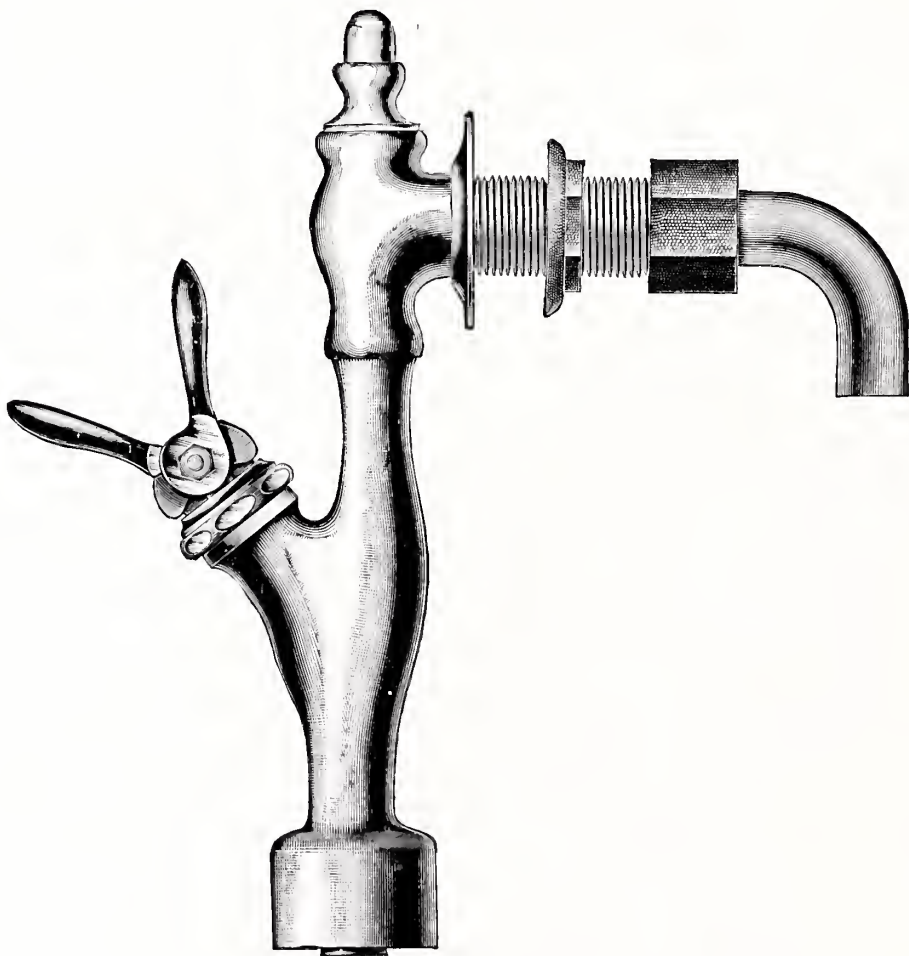


Fig. 752.

Polished Brass . . . . .	Per dozen.	\$60.00
Nickel Plated . . . . .	"	66.00

# SELF-CLOSING URINAL COCKS—CONTINUED.

## DOHERTY PATTERN.

FLANGE AND THIMBLE.

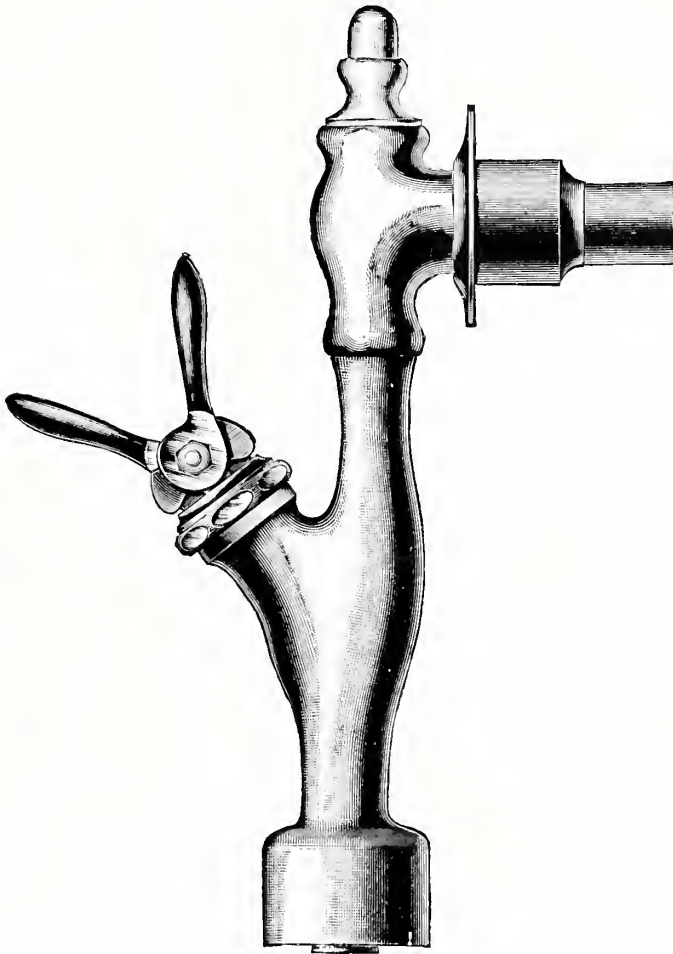


Fig. 753.

Polished Brass . . . . .	Per dozen.	\$54.00
Nickel Plated . . . . .	"	60.00



SELF-CLOSING URINAL COCKS—CONTINUED.

DOHERTY PATTERN.

FOR IRON PIPE, WITH SHOULDER.

FOR IRON PIPE, WITHOUT SHOULDER.

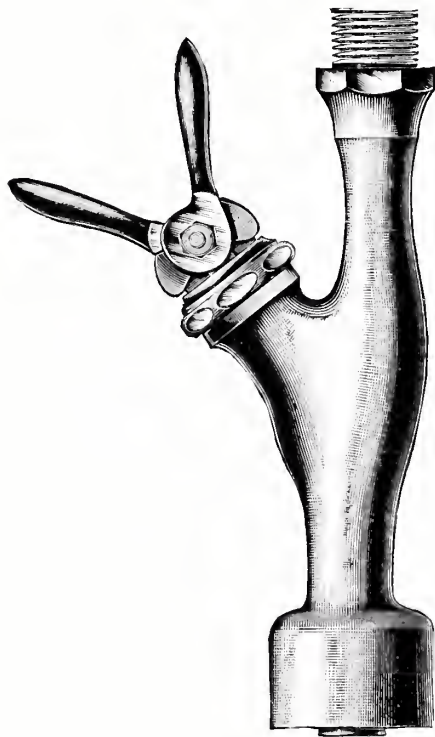


Fig. 754.

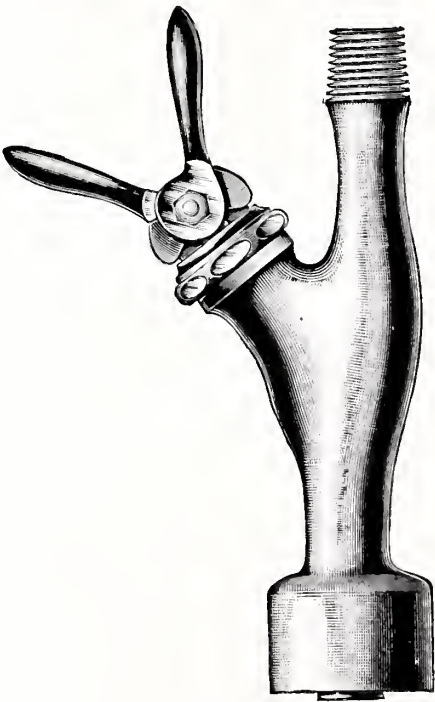


Fig. 755.

Fig. 754.	Polished Brass . .	Per dozen.	\$33.00
" 754.	Nickel Plated . .	"	36.00

Fig. 755.	Polished Brass . .	Per dozen.	\$33.00
" 755.	Nickel Plated . .	"	36.00

SELF-CLOSING URINAL COCKS—CONTINUED.

DOHERTY PATTERN.  
FOR LEAD PIPE.

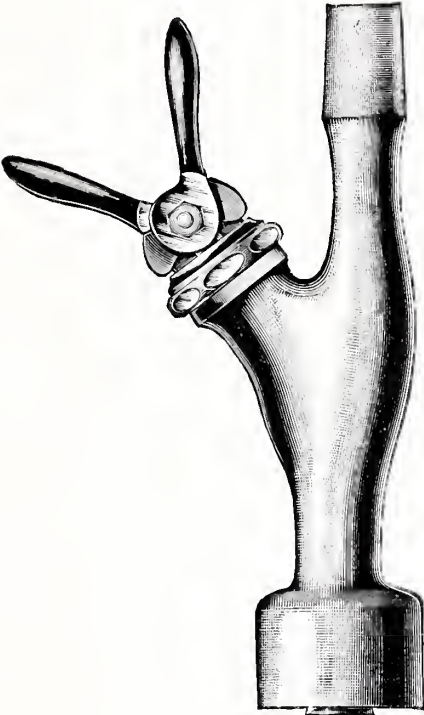


Fig. 756.

BOSTON PATTERN.  
FOR LEAD PIPE.

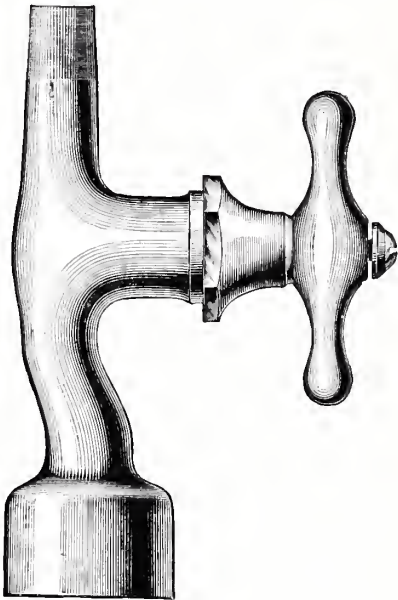


Fig. 757.

Fig. 756.	Polished Brass . . . . .	Per dozen.	\$32.00
" 756.	Nickel Plated . . . . .	"	35.00
" 757.	Finished . . . . .	"	36.00
" 757.	Nickel Plated . . . . .	"	41.00
" 757.	Silver Plated . . . . .	"	48.00

Fig. 757. For Iron Pipe add \$1.00 to List.

MOORE'S PATENT SELF-CLOSING BIBBS.

FOR LEAD PIPE.

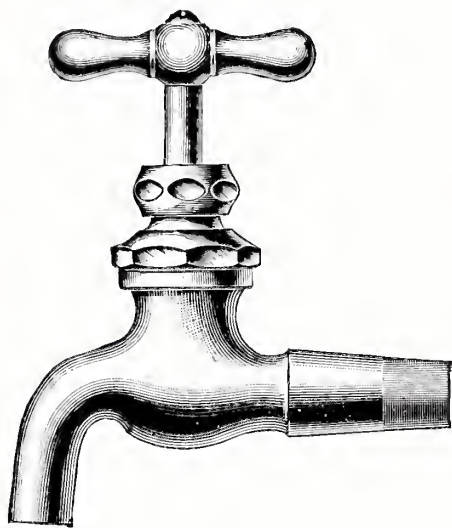


Fig. 758.

FOR IRON PIPE, WITH SHOULDER.

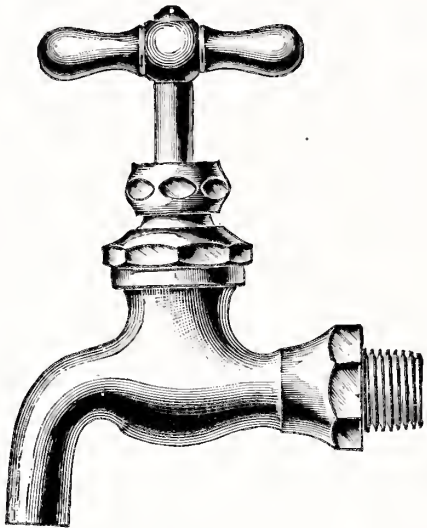


Fig. 759.

SIZE . . . . .	INCHES.		$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Fig. 758. Polished Brass . . . . .	Per dozen.		\$24.00	27.00	33.00
" 758. Nickel Plated . . . . .	"		28.00	31.00	38.00
" 759. Polished Brass . . . . .	"		28.00	31.00	37.00
" 759. Nickel Plated . . . . .	"		32.00	35.00	42.00
Add for Hose End . . . . .	"		4.00	4.00	4.00

FOR IRON PIPE.

WITHOUT SHOULDER.

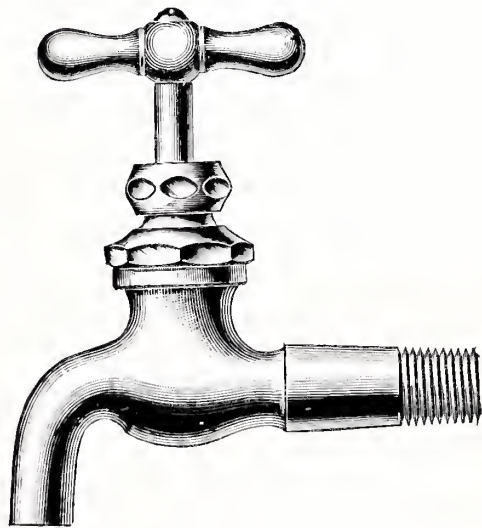


Fig. 760.

FLANGE AND INSIDE SCREW.

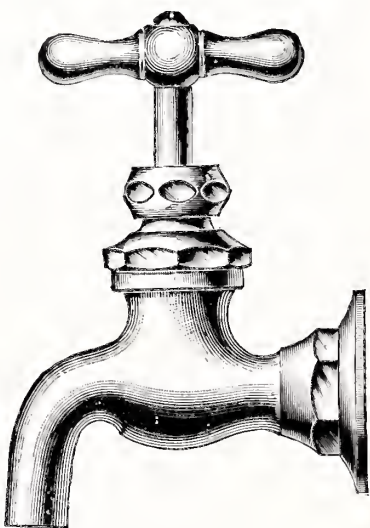


Fig. 761.

SIZE . . . . .	INCHES.		$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Fig. 760. Polished Brass . . . . .	Per dozen.		\$28.00	31.00	37.00
" 760. Nickel Plated . . . . .	"		32.00	35.00	42.00
" 761. Polished Brass . . . . .	"		33.50	36.50	44.00
" 761. Nickel Plated . . . . .	"		37.50	40.50	48.00
Add for Hose End . . . . .	"		4.00	4.00	4.00

For Iron Pipe, Flange and Outside Screw, use same List as Flange and Inside Screw.  
Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# MOORE'S PATENT SELF-CLOSING BIBBS.

CONTINUED.

FLANGE AND THIMBLE.

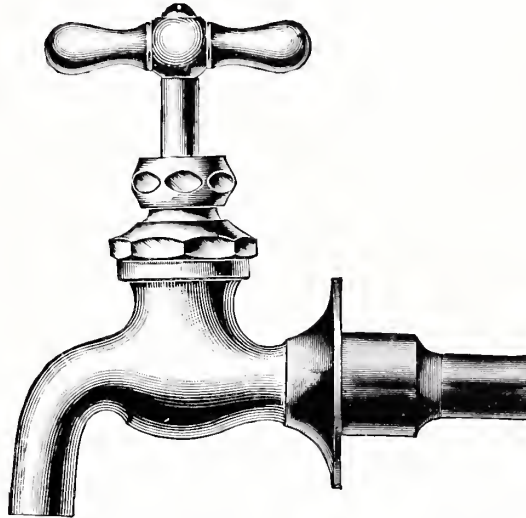


Fig. 762.

FLANGE, NUT AND BENT COUPLING.

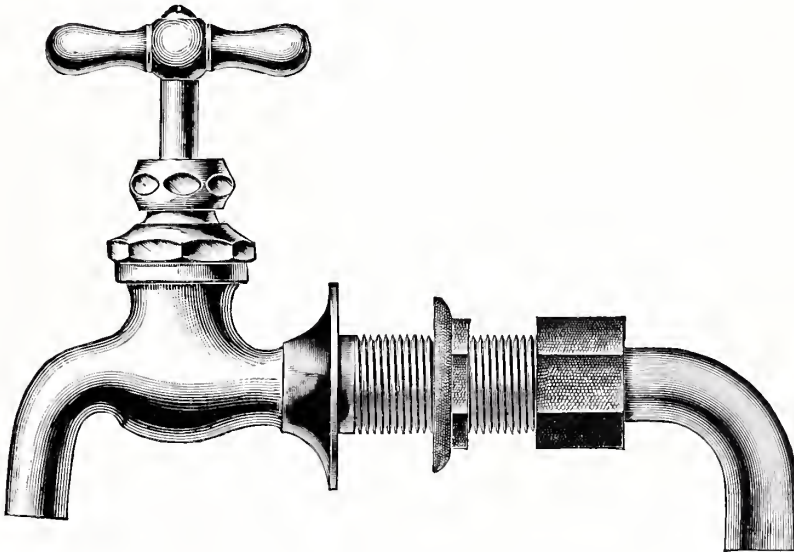


Fig. 763.

SIZE . . . . .	INCHES.			
Fig. 762. Polished Brass . . . . .	Per dozen.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
" 762. Nickel Plated . . . . .	"	\$36.00	39.00	47.00
" 763. Polished Brass . . . . .	"	40.00	43.00	51.00
" 763. Nickel Plated . . . . .	"	45.00	48.00	59.00
Add for Hose End . . . . .	"	49.00	52.00	63.00
		4.00	4.00	4.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



SELF-CLOSING STOPS.

BOSTON PATTERN.

FOR LEAD PIPE.

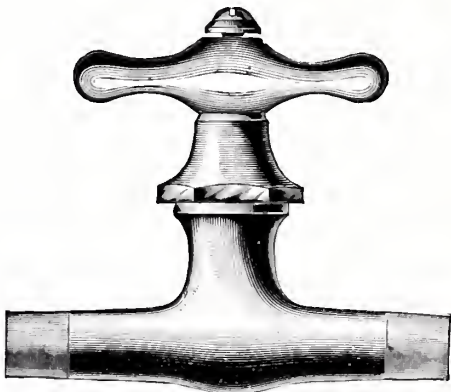


Fig. 764.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Fig. 764. Polished Brass . . . . .	Per dozen.	\$24.00	27.00	33.00
“ 764. Nickel Plated . . . . .	“	28.00	31.00	38.00

FOR IRON PIPE.

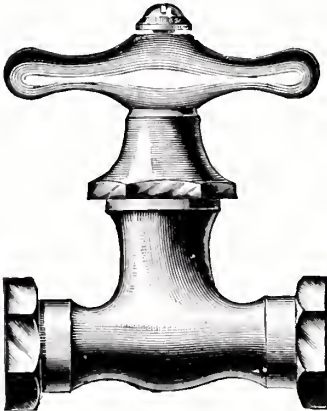


Fig. 765.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
“ 765. Polished Brass . . . . .	Per dozen.	\$32.00	35.00	41.00
“ 765. Nickel Plated . . . . .	“	36.00	39.00	46.00

FOR LEAD AND IRON PIPE.

NOT ILLUSTRATED.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Polished Brass . . . . .	Per dozen.	\$28.00	31.00	37.00
Nickel Plated . . . . .	“	32.00	35.00	42.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

SELF-CLOSING STOPS—CONTINUED.

DOHERTY PATTERN.

FOR LEAD PIPE.

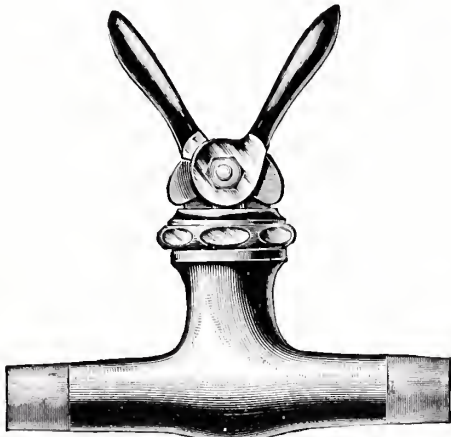


Fig. 766.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 766. Polished Brass . . . . .	Per dozen.	\$24.00	27.00
" 766. Nickel Plated . . . . .	"	37.50	40.00

FOR IRON PIPE.

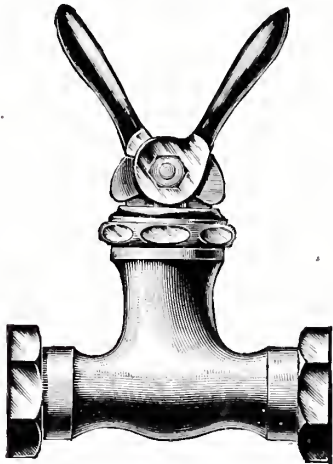


Fig. 767.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 767. Polished Brass . . . . .	Per dozen.	\$30.00	33.00
" 767. Nickel Plated . . . . .	"	45.00	48.00

FOR LEAD AND IRON PIPE.

NOT ILLUSTRATED.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Polished Brass . . . . .	Per dozen.	\$27.00	30.00
Nickel Plated. . . . .	"	40.00	43.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

BOSTON SELF-CLOSING WORK.

BOSTON SELF-CLOSING BASIN COCK.

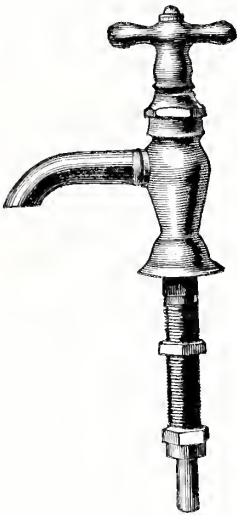


Fig. 768.

Fig. 768.	Finished	Per dozen.	\$45.00
" 768.	Nickel Plated	"	48.00
" 768.	Silver Plated	"	60.00

BOSTON SELF-CLOSING HOPPER COCKS.

FINISHED FLANGE AND HANDLE.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
For Lead Pipe, Finished . . . . . Per dozen.	\$27.00	30.00	. .
" " " Nickel Plated . . . . . "	30.00	33.00	. .
" Iron " Finished . . . . . "	31.00	. .	34.00
" " " Nickel Plated . . . . . "	34.00	. .	38.00

BOSTON SELF-CLOSING PANTRY COCKS.

Finished	Per dozen.	\$54.00
Nickel Plated	"	64.00
Silver Plated	"	72.00
Hose End, extra	"	4.00

# PECK'S IMPROVED BIBBS.

## FOR LEAD PIPE.

PLAIN.

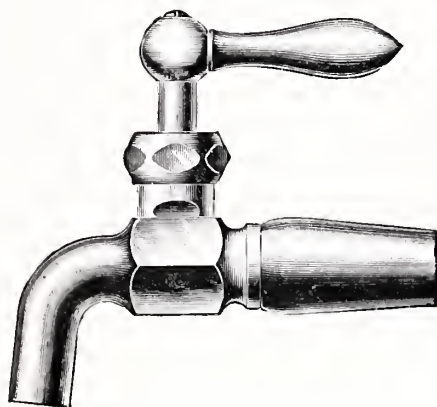


Fig. 769.

HOSE.

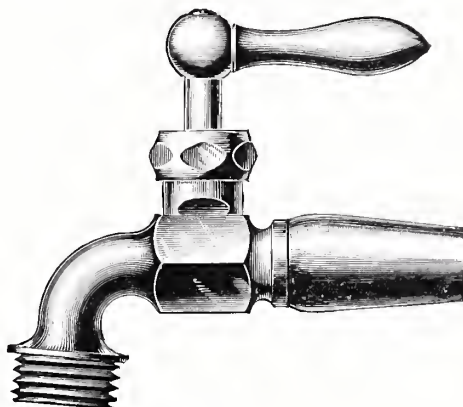


Fig. 770.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 769. Polished Brass . . . . . Per dozen.	\$18.00	20.00	26.00	36.00
" 769. Nickel Plated . . . . . "	22.00	24.00	32.00	46.00
" 770. Polished Brass . . . . . "	21.00	24.00	30.00	40.00
" 770. Nickel Plated . . . . . "	25.00	28.00	36.00	50.00

## FOR IRON PIPE, WITH SHOULDER.

PLAIN.

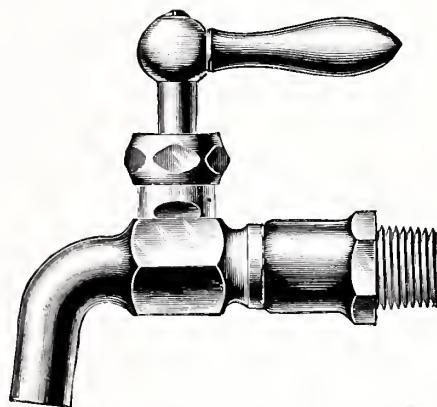


Fig. 771.

HOSE.

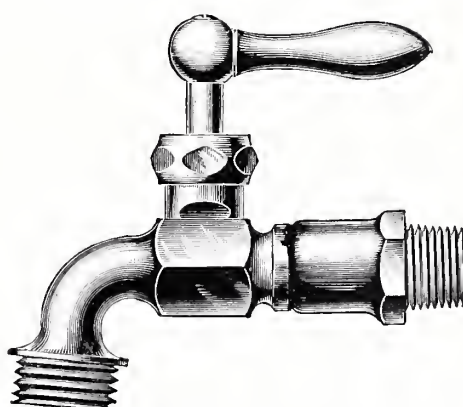


Fig. 772.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 771. Polished Brass . . . . . Per dozen.	\$21.00	24.00	30.00	40.00
" 771. Nickel Plated . . . . . "	25.00	28.00	36.00	50.00
" 772. Polished Brass . . . . . "	24.00	28.00	34.00	44.00
" 772. Nickel Plated . . . . . "	28.00	32.00	40.00	54.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



PECK'S IMPROVED BIBBS—CONTINUED.

FOR IRON PIPE, WITHOUT SHOULDER.

PLAIN.

HOSE.

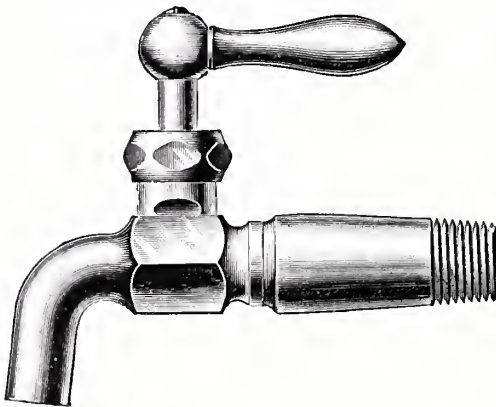


Fig. 773.

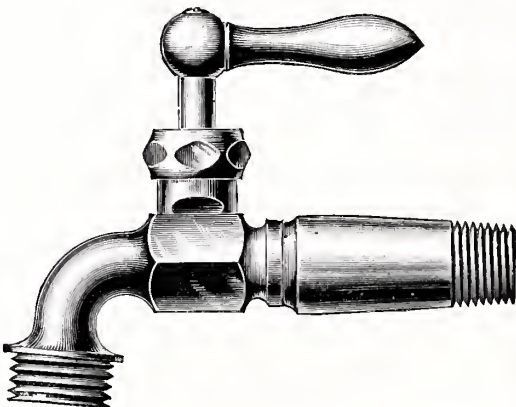


Fig. 774.

SIZE . . . . . INCHES.		$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 773.	Polished Brass . . . . . Per dozen.	\$21.00	24.00	30.00	40.00
" 773.	Nickel Plated . . . . . "	25.00	28.00	35.00	50.00
" 774.	Polished Brass . . . . . "	24.00	28.00	34.00	44.00
" 774.	Nickel Plated . . . . . "	28.00	32.00	40.00	54.00

FOR IRON PIPE, FLANGE AND OUTSIDE SCREW.

PLAIN.

HOSE.

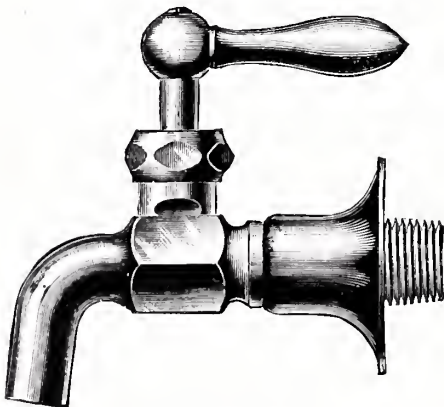


Fig. 775.

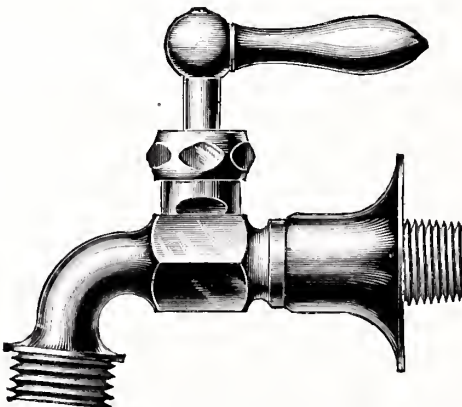


Fig. 776.

SIZE . . . . . INCHES.		$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 775.	Polished Brass . . . . . Per dozen.	\$23.50	25.50	33.00	44.00
" 775.	Nickel Plated . . . . . "	29.50	31.50	39.00	54.00
" 776.	Polished Brass . . . . . "	26.50	29.50	37.00	48.00
" 776.	Nickel Plated . . . . . "	32.50	35.50	43.00	58.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

PECK'S IMPROVED BIBBS—CONTINUED.

FLANGE, NUT AND BENT COUPLING.

PLAIN.

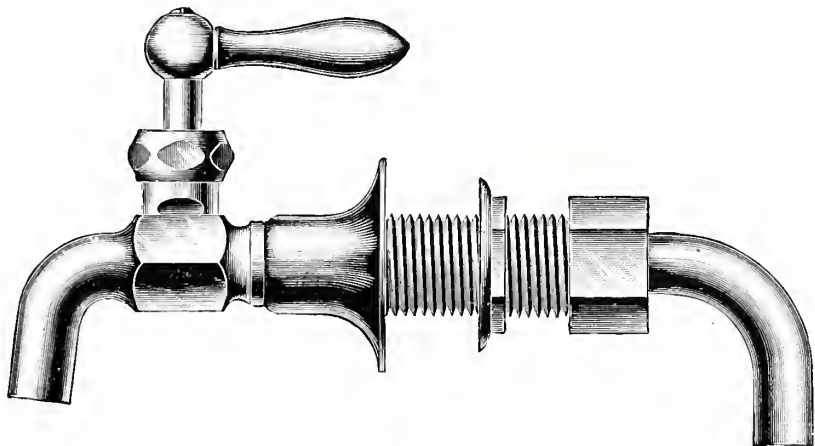


Fig. 777.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Fig. 777. Polished Brass . . . . .	Per dozen.	\$35.00	40.00	54.00	72.00
" 777. Nickel Plated . . . . .	"	41.00	46.00	60.00	82.00

HOSE.

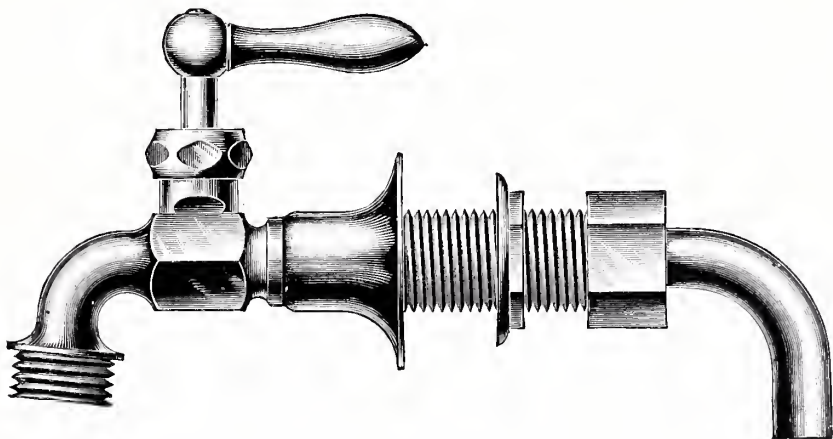


Fig. 778.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Fig. 778. Polished Brass . . . . .	Per dozen.	\$38.00	44.00	58.00	76.00
" 778. Nickel Plated . . . . .	"	44.00	50.00	64.00	86.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

PECK'S IMPROVED TRAY BIBBS.

FOR LEAD PIPE.

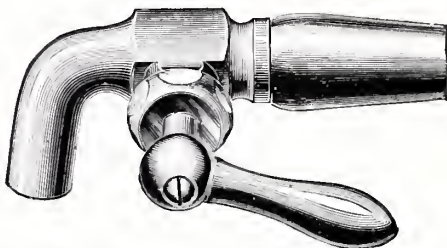


Fig. 779.

FLANGE AND THIMBLE.

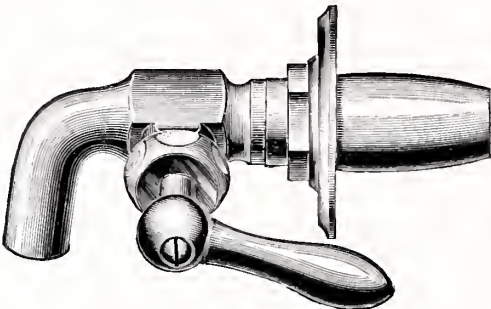


Fig. 780.

SIZE. . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 779. Polished Brass. . . . . Per dozen.	\$20.00	22.50	30.00	40.00
" 779. Nickel Plated. . . . . "	24.00	26.50	36.00	50.00
" 780. Polished Brass. . . . . "	26.00	28.00	36.00	50.00
" 780. Nickel Plated. . . . . "	32.00	34.00	42.00	60.00

FLANGE, NUT AND BENT COUPLING.

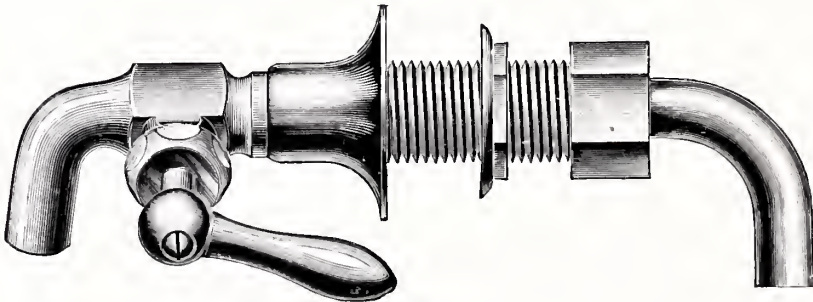


Fig. 781.

SIZE. . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$	1
Fig. 781. Polished Brass. . . . . Per dozen.	\$35.00	40.00	54.00	74.00
" 781. Nickel Plated. . . . . "	41.00	46.00	60.00	84.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

PECK'S IMPROVED BIBBS.

FLANGE AND THIMBLE.

PLAIN.

HOSE.

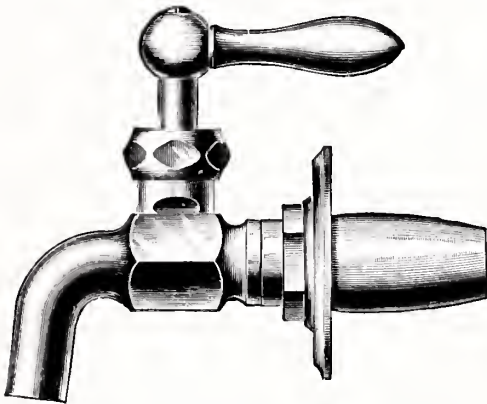


Fig. 782.

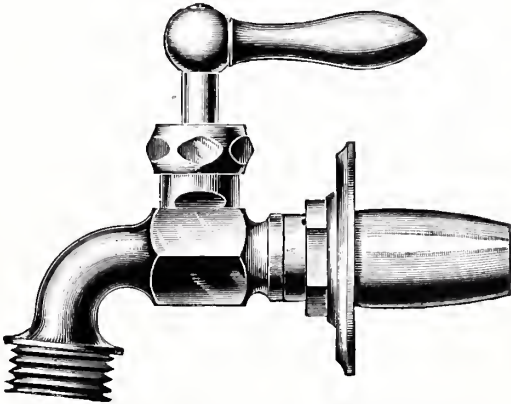


Fig. 783.

SIZE . . . . . INCHES.			$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	1
Fig. 782.	Polished Brass . . .	Per dozen.	\$26.00	28.00	36.00	48.00
" 782.	Nickel Plated . . . .	"	32.00	34.00	42.00	58.00
" 783.	Polished Brass . . . .	"	29.00	32.00	40.00	52.00
" 783.	Nickel Plated . . . .	"	35.00	38.00	46.00	62.00

TRIMMINGS FOR PECK'S IMPROVED BIBBS.

ECCENTRIC.

RUBBER VALVE.



Fig. 784.

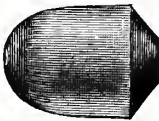


Fig. 785.

SIZE . . . . . IN.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	1
Fig. 785. . . . . Per doz.	\$0.75	.75	1.00	1.25

VALVE AND STEM.

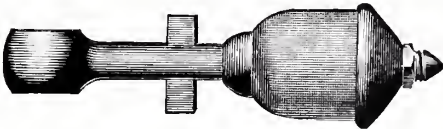


Fig. 786.

SIZE . . . . . IN.			$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	1
Fig. 784. . . . . Per doz.	\$3.00	3.00	4.00	6.00		
SIZE . . . . . INCHES.			$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{2}$	1
Levers for Bibbs . . . . . Per dozen.	\$3.00	3.00	4.00	6.00		

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



PECK'S IMPROVED BATH BIBBS.

FANCY LEVER HANDLE.

FLANGE AND THIMBLE.

FOR IRON PIPE. FLANGE AND OUTSIDE SCREW.

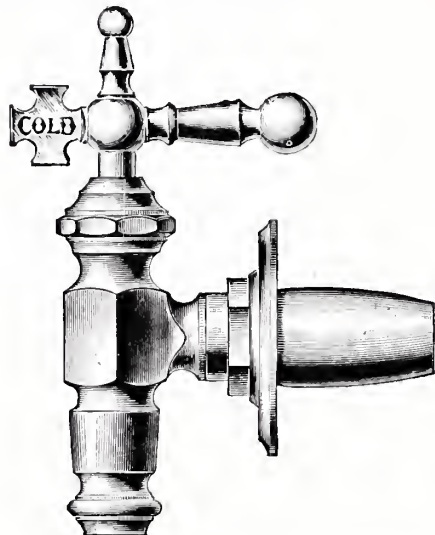


Fig. 787.

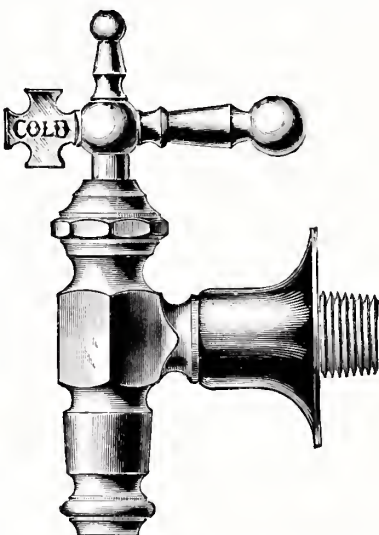


Fig. 788.

SIZE . . . . . INCHES.		$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Fig. 787.	Polished Brass . . . Per dozen.	\$29.00	31.00	43.00	55.00
" 787.	Nickel Plated . . . . "	35.00	37.00	49.00	65.00
" 788.	Polished Brass . . . . "	26.50	28.50	40.00	51.00
" 788.	Nickel Plated . . . . "	32.50	34.50	46.00	61.00

FLANGE, NUT AND BENT COUPLING.

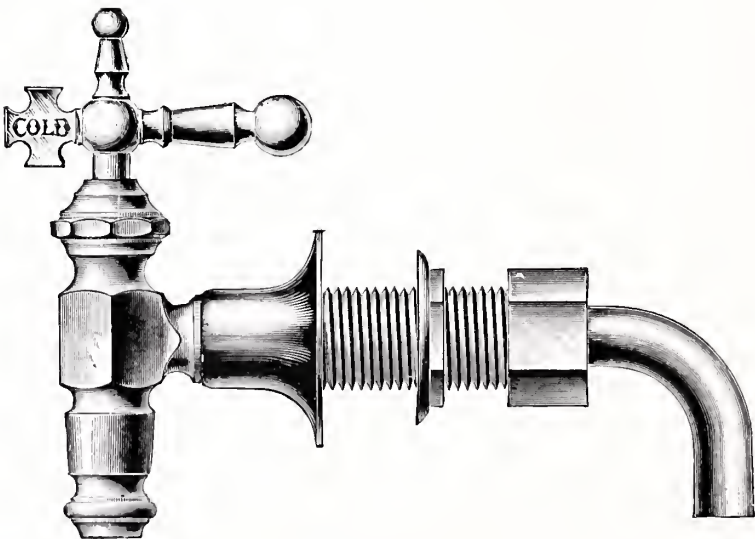


Fig. 789.

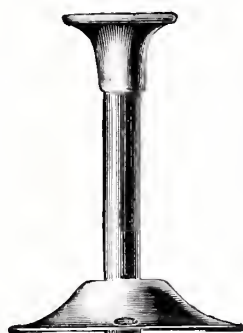
SIZE . . . . . INCHES.		$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Fig. 789.	Polished Brass . . . . . Per dozen.	\$38.00	43.00	61.00	79.00
" 789.	Nickel Plated . . . . . "	44.00	49.00	67.00	89.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

# TELEGRAPH SELF-CLOSING HOPPER COCKS.

## STRAIGHT PATTERN.

FOR LEAD PIPE.



FOR LEAD AND  
IRON PIPE.

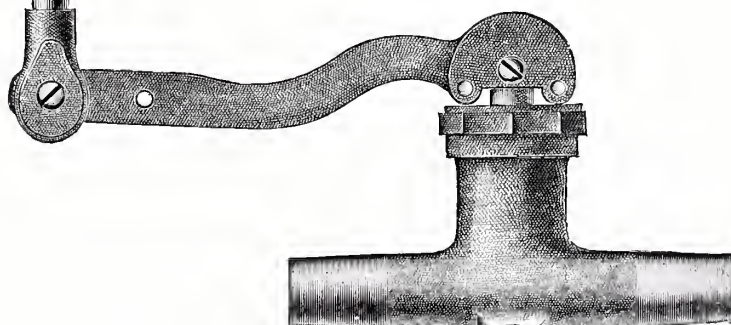
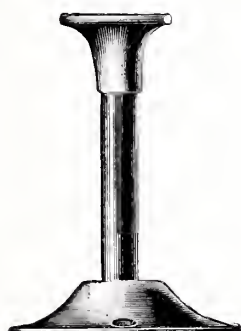


Fig. 790.

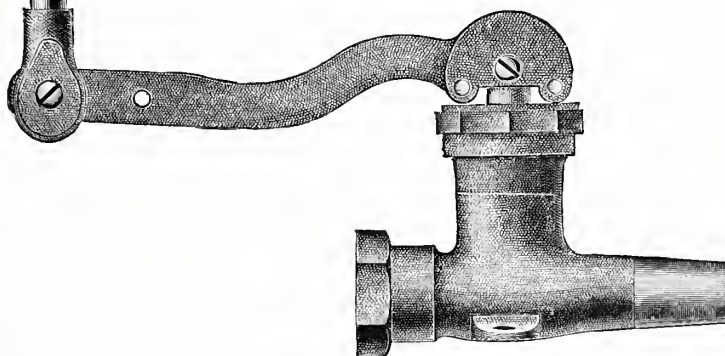


Fig. 791.

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch. For Prices, see page 244.

TELEGRAPH SELF-CLOSING HOPPER  
COCKS—CONTINUED.

FOR LEAD PIPE.

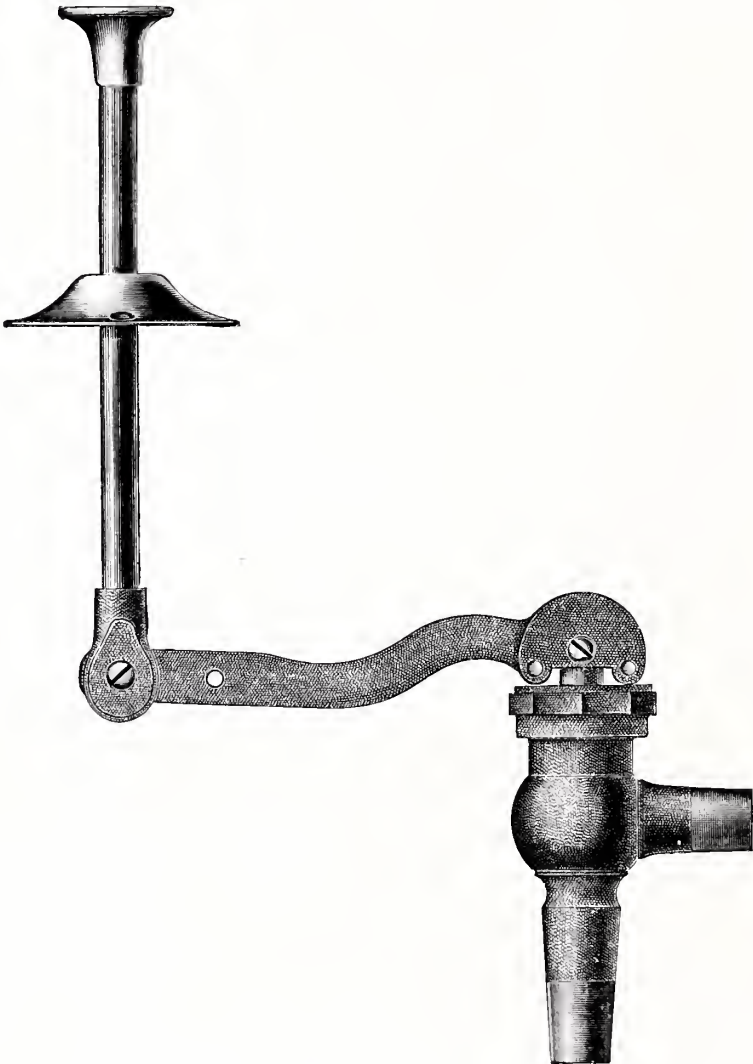


Fig. 792.

SIZE . . . . . INCHES.						$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{4}$
Fig. 790.	Finished	Flange and Handle . . . . .	Per dozen.			\$24.00	26.00	30.00
" 790.	Nickel Plated	" " " . . . . .	"			26.00	28.50	32.50
" 791.	Finished	" " " . . . . .	"			25.00	27.50	32.00
" 791.	Nickel Plated	" " " . . . . .	"			27.00	30.00	34.50
" 792.	Finished	" " " . . . . .	"			24.00	26.00	30.00
" 792.	Nickel Plated	" " " . . . . .	"			26.00	28.50	32.00

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

For Illustrations of Figs. 790 and 791, see page 243.

# TELEGRAPH SELF-CLOSING HOPPER COCKS—CONTINUED.

FOR IRON PIPE. INSIDE SCREW.

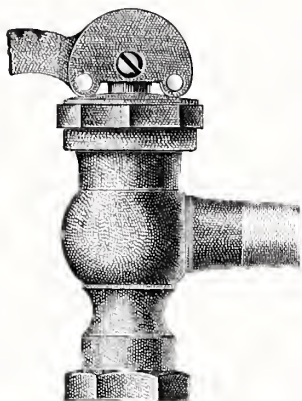


Fig. 793.

FOR IRON PIPE. OUTSIDE SCREW.

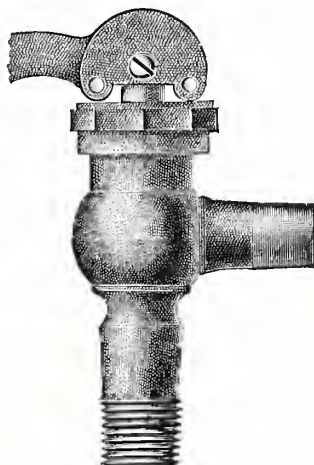


Fig. 794.

FOR LEAD PIPE. WITH COUPLING.

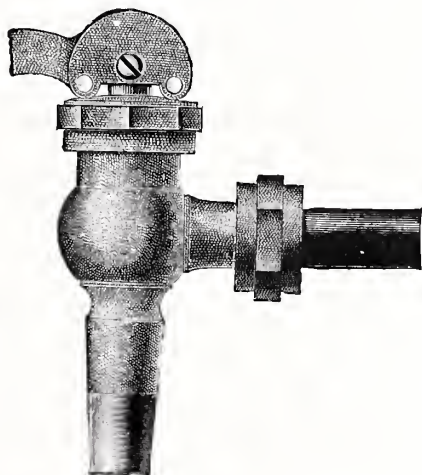


Fig. 795.

FOR IRON PIPE. WITH COUPLING.

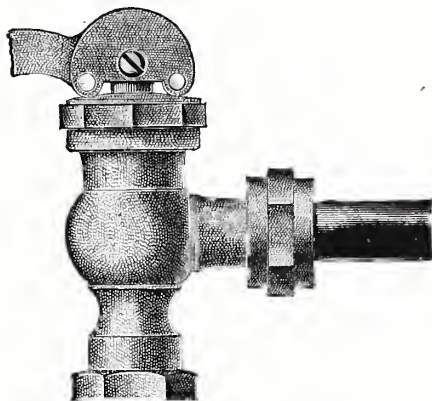


Fig. 796.

SIZE . . . . . INCHES.						$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{4}$
Fig. 793.	Finished	Flange and Handle . . . .	Per dozen.			\$25.00	27.50	32.00
" 793.	Nickel Plated	" " " . . . .	"			27.00	30.00	34.50
" 794.	Finished	" " " . . . .	"			25.00	27.50	32.00
" 794.	Nickel Plated	" " " . . . .	"			27.00	30.00	34.50
" 795.	Finished	" " " . . . .	"			29.00	"	"
" 795.	Nickel Plated	" " " . . . .	"			31.50	"	"
" 796.	Finished	" " " . . . .	"			30.00	"	"
" 796.	Nickel Plated	" " " . . . .	"			32.00	"	"

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.



COMPRESSION HOPPER COCKS.

ANGLE PATTERN.

FOR LEAD PIPE.                      FOR LEAD AND IRON PIPE.    FOR LEAD AND IRON PIPE.  
OUTSIDE SCREW,  
WITHOUT SHOULDER.

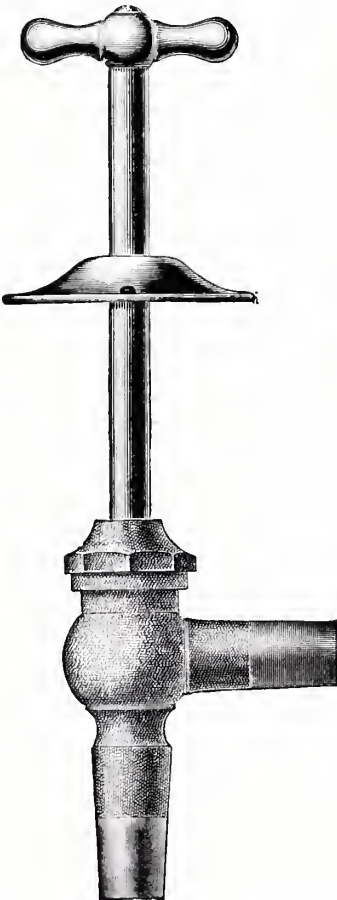


Fig. 797.

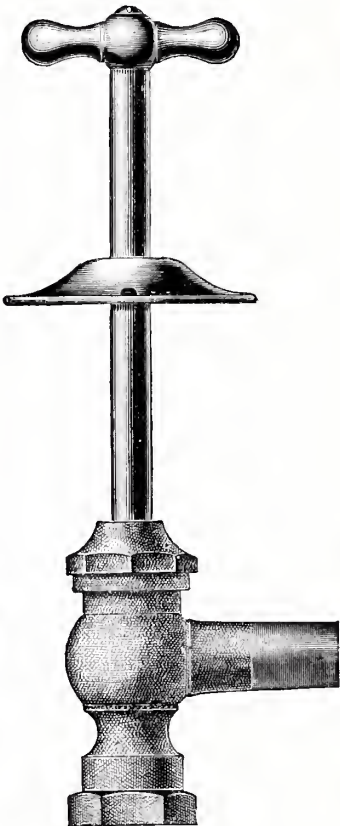


Fig. 798.

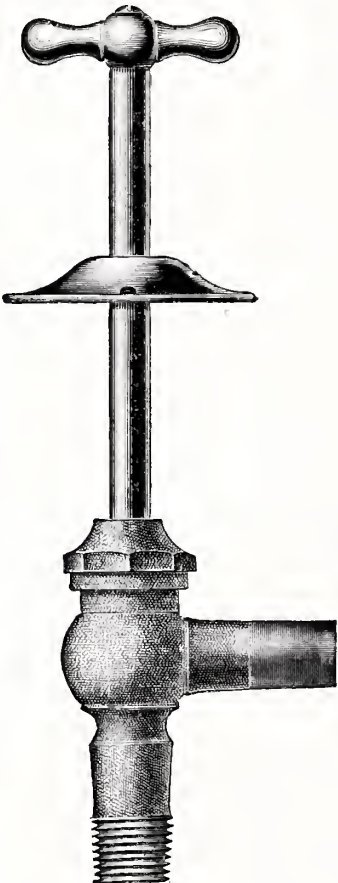


Fig. 799.

SIZE . . . . . INCHES.		$\frac{1}{2}$	$\frac{3}{8}$	$\frac{3}{4}$
Fig. 797.	Finished Flange and Handle . . . . . Per dozen.	\$16.00	19.00	24.00
" 797.	Nickel Plated Flange and Handle . . . . . "	18.50	21.50	26.50
" 798.	Finished Flange and Handle . . . . . "	17.00	20.00	26.00
" 798.	Nickel Plated Flange and Handle . . . . . "	19.50	22.50	28.50
" 799.	Finished Flange and Handle . . . . . "	17.00	20.00	26.00
" 799.	Nickel Plated Flange and Handle . . . . . "	19.50	22.50	28.50

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

COMPRESSION HOPPER COCKS.

CONTINUED.

STRAIGHT PATTERN.

FOR LEAD PIPE.

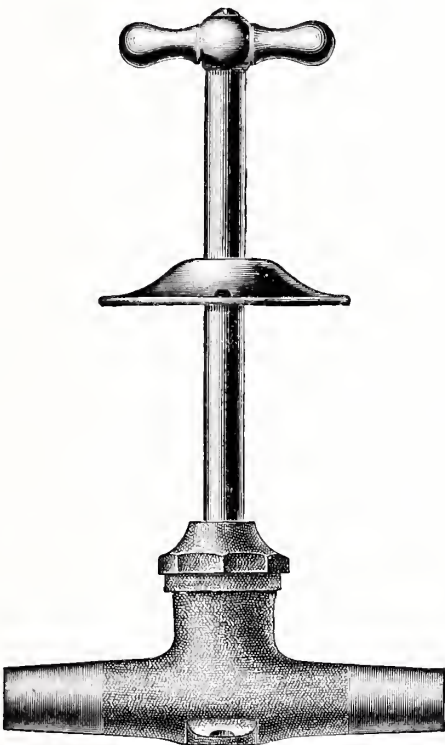


Fig. 800.

FOR LEAD AND IRON PIPE.

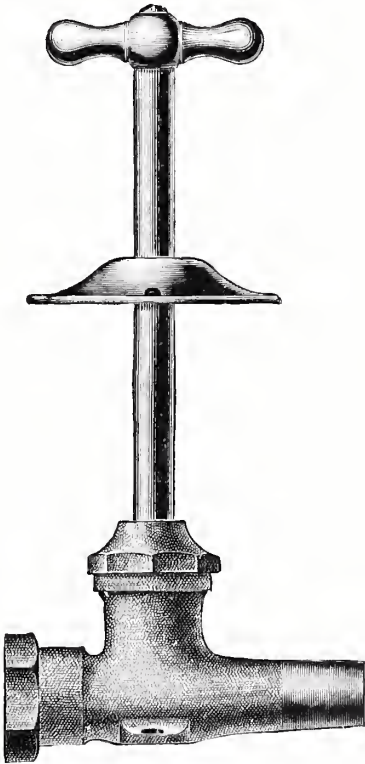


Fig. 801.

SIZE . . . . . INCHES.						$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Fig. 800.	Finished	Flange and Handle . . .	Per dozen.			\$18.00	21.00	28.00
" 800.	Nickel Plated	" " " . . .	"			20.50	23.50	30.50
" 801.	Finished	" " " . . .	"			18.50	22.00	29.00
" 801.	Nickel Plated	" " " . . .	"			21.00	24.50	31.50

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

COMPRESSION HOPPER COCKS.  
CONTINUED.

ANGLE PATTERN, WITH COUPLING.

FOR LEAD PIPE.

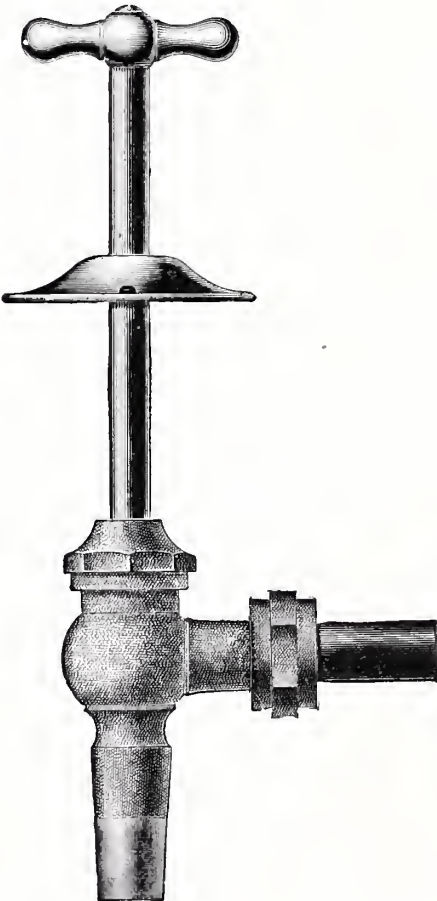


Fig. 802.

FOR IRON PIPE.

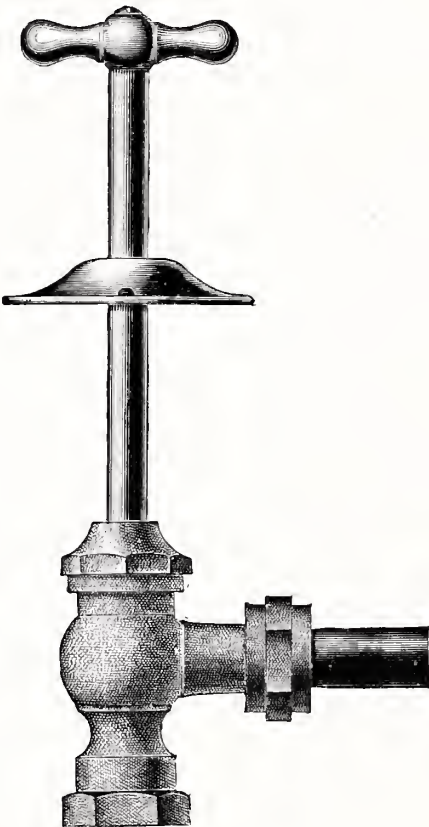


Fig. 803.

SIZE. . . . . INCHES.						$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$
Fig. 802.	Finished	Flange and Handle	. . .	Per dozen.		\$21 00	25.00	32 00
" 802.	Nickel Plated	" "	" . . .	"		23 50	27.50	34.50
" 803.	Finished	" "	" . . .	"		22 00	26.00	34.00
" 803.	Nickel Plated	" "	" . . .	"		24 50	28.50	36.50

Illustrations  $\frac{1}{2}$  size of  $\frac{1}{2}$  inch.

COMPRESSION SILL COCKS.

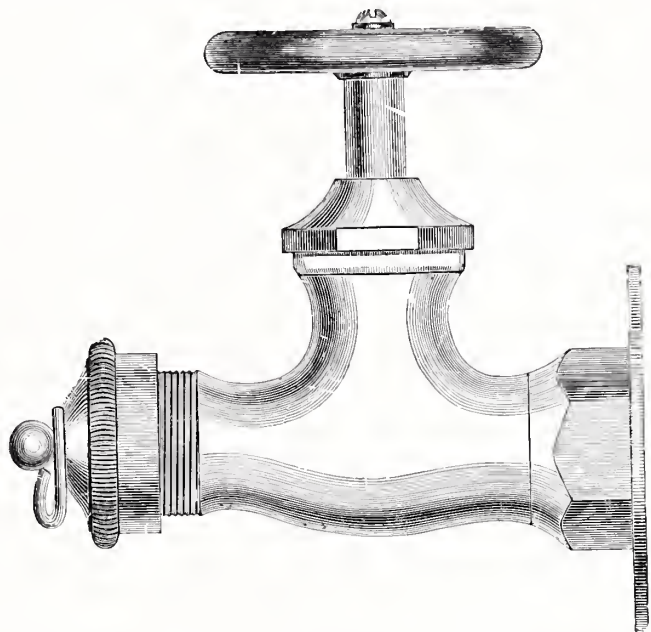


Fig. 804.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 804. Finished . . . . .	Per dozen.	\$20.00	20.00
" 804. Nickel Plated . . . . .	"	23.00	23.00
Add for Caps. . . . .	"	2.00	2.00

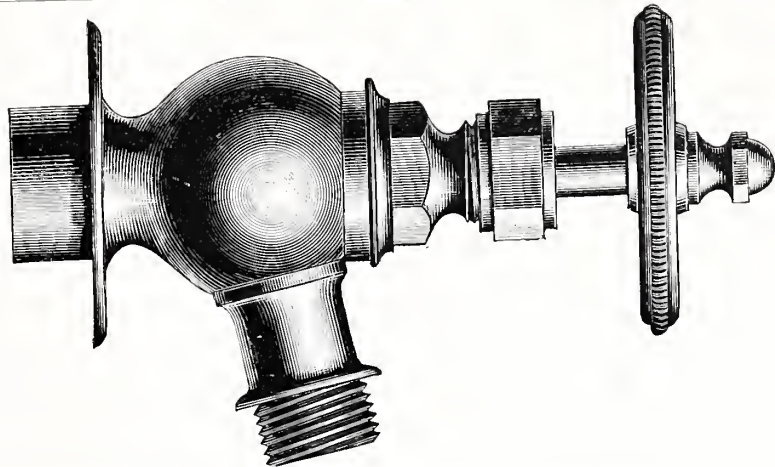


Fig. 805.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 805. Finished . . . . .	Per dozen.	\$25.00	30.00
" 805. Nickel Plated . . . . .	"	29.00	34.00
Add for Caps. . . . .	"	2.00	2.00



SWING BASIN COCKS.

GROUND KEY.

STYLE A.

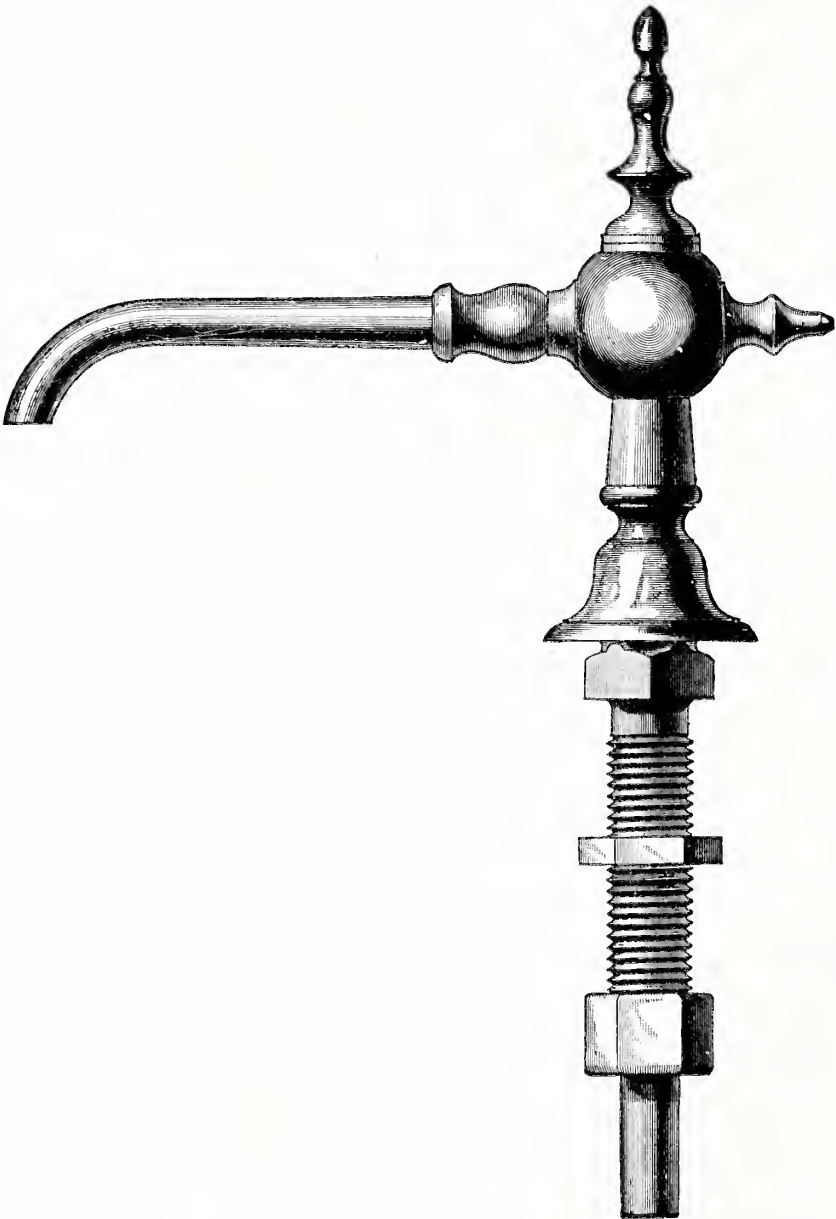


Fig. 806.

STYLE . . . . .	A	B	C	D
Fig. 806, Finished . . . . . Per dozen.	\$18.00	21.00	22.00	24.00
“ 806, Nickel Plated . . . . . “	21.00	25.00	26.00	28.00
“ 806, Silver Plated . . . . . “	27.00	33.00	34.00	36.00

COMPRESSION BASIN COCKS.

No. 1.

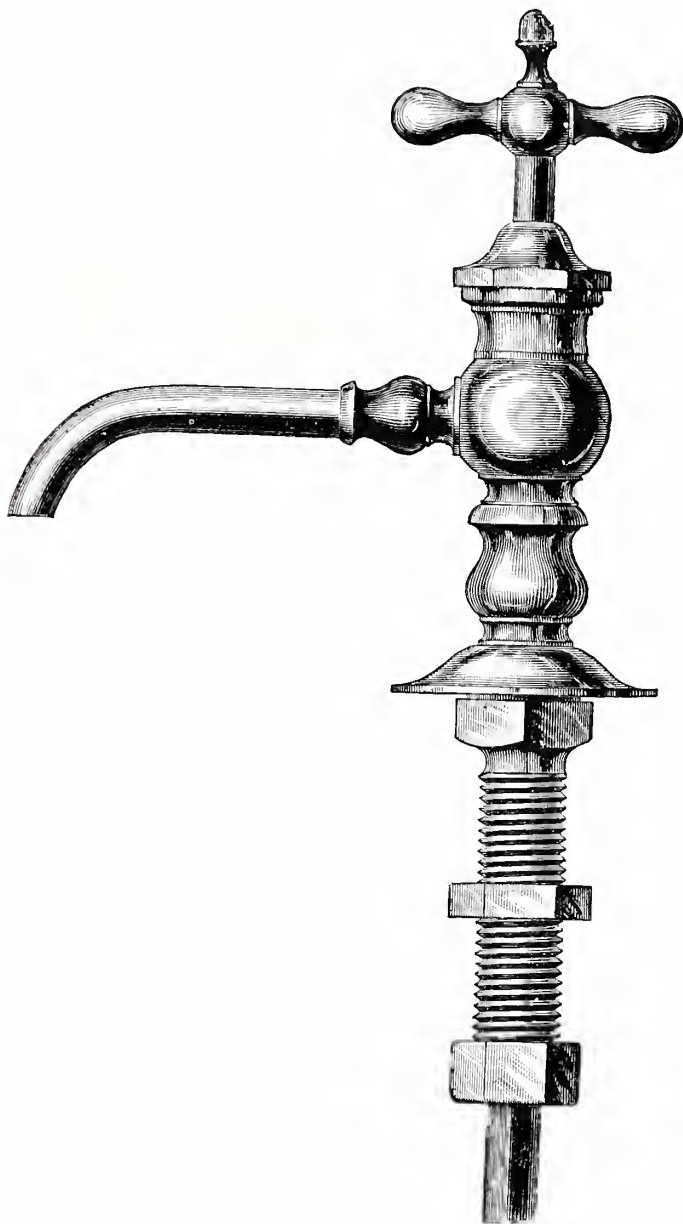


Fig. 807.

Fig. 807.	Finished . . . . .	Per dozen.	\$16.00
" 807.	Nickel Plated . . . . .	"	19.00
" 807.	Silver Plated . . . . .	"	25.00
" 807.	Finished, with 4-Arm Handle . . . . .	"	17.00
" 807.	Nickel Plated, with 4-Arm Handle . . . . .	"	20.00
" 807.	Silver Plated, " " " . . . . .	"	26.00

Add for Large Tube, \$2.00 per dozen. Add for Stuffing Box, \$2.00 per dozen.



## COMPRESSION BASIN COCKS—CONTINUED.

No. 7.



Fig. 809.

Fig. 809.	Finished . . . . .	Per dozen.	\$28.00
" 809.	Nickel Plated . . . . .	"	32.00
" 809.	Silver Plated . . . . .	"	42.00
" 809.	Finished, with T Handle . . . . .	"	26.00
" 809.	Nickel Plated, with T Handle . . . . .	"	30.00
" 809.	Silver Plated, " " " . . . . .	"	40.00



SELF-CLOSING BASIN COCKS.

TELEGRAPH HANDLE.

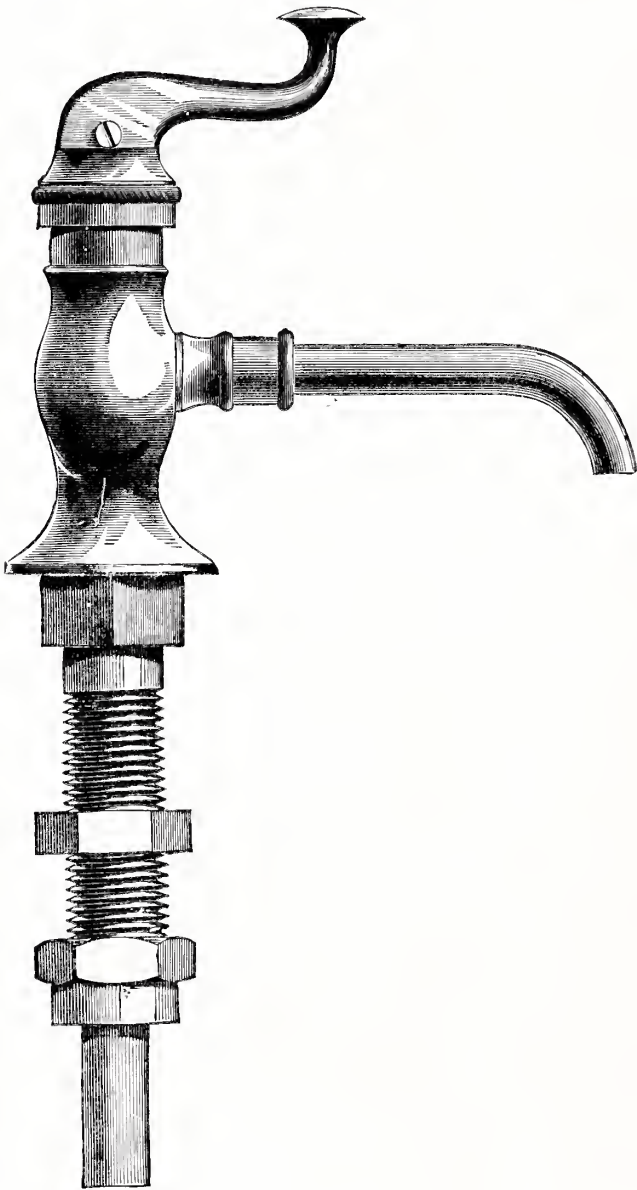


Fig. 810.

Fig. 810.	Finished . . . . .	Per dozen.	\$24.00
" 810.	Nickel Plated . . . . .	"	27.00
" 810.	Silver " . . . . .	"	33.00
" 810.	Finished, Large Pattern . . . . .	"	30.00
" 810.	Nickel Plated " " . . . . .	"	34.00
" 810.	Silver " " . . . . .	"	40.00

Add for Large Tubes, \$2.00 per dozen.

## DOHERTY SELF-CLOSING BASIN COCKS.

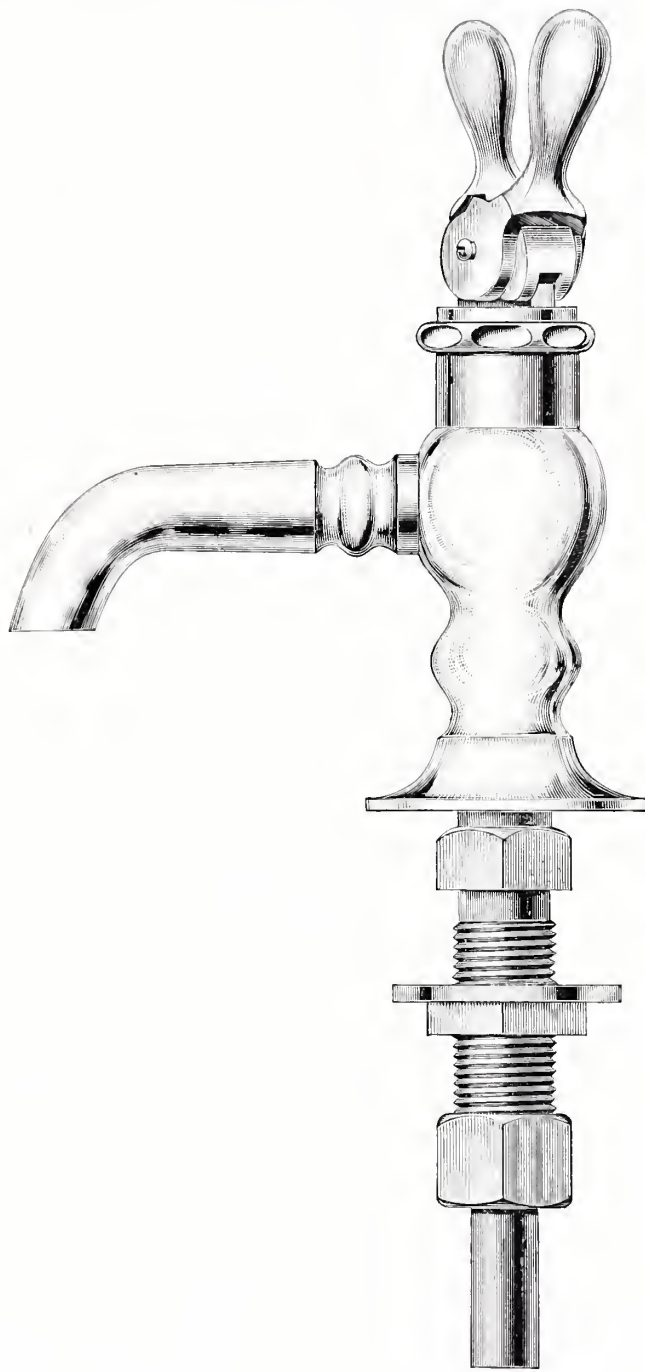


Fig. 811.

Fig. 811. Finished . . . . .	Per dozen.	\$42.00
" 811. Nickel Plated . . . . .	"	48.00
" 811. Silver Plated . . . . .	"	56.00

## MOORE'S SELF-CLOSING BASIN COCKS — Not Illustrated.

Finished . . . . .	Per dozen.	\$45.00
Nickel Plated . . . . .	"	48.00
Silver Plated . . . . .	"	60.00

# COMPRESSION PANTRY COCKS.

PLAIN.

HOSE END.

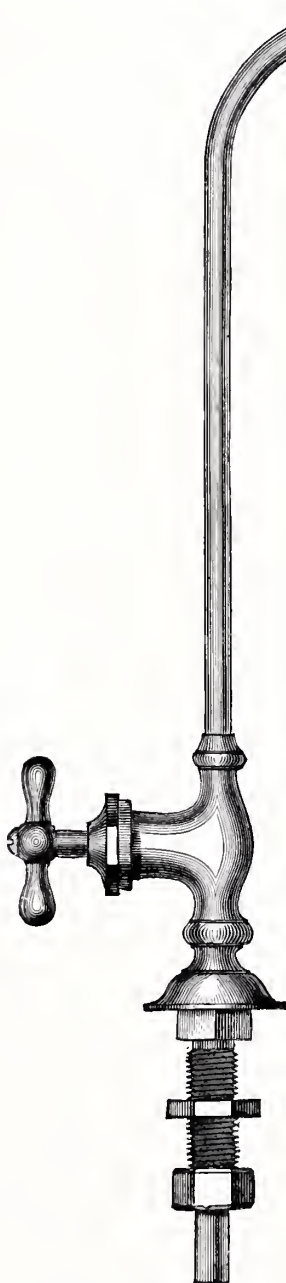


Fig. 812.

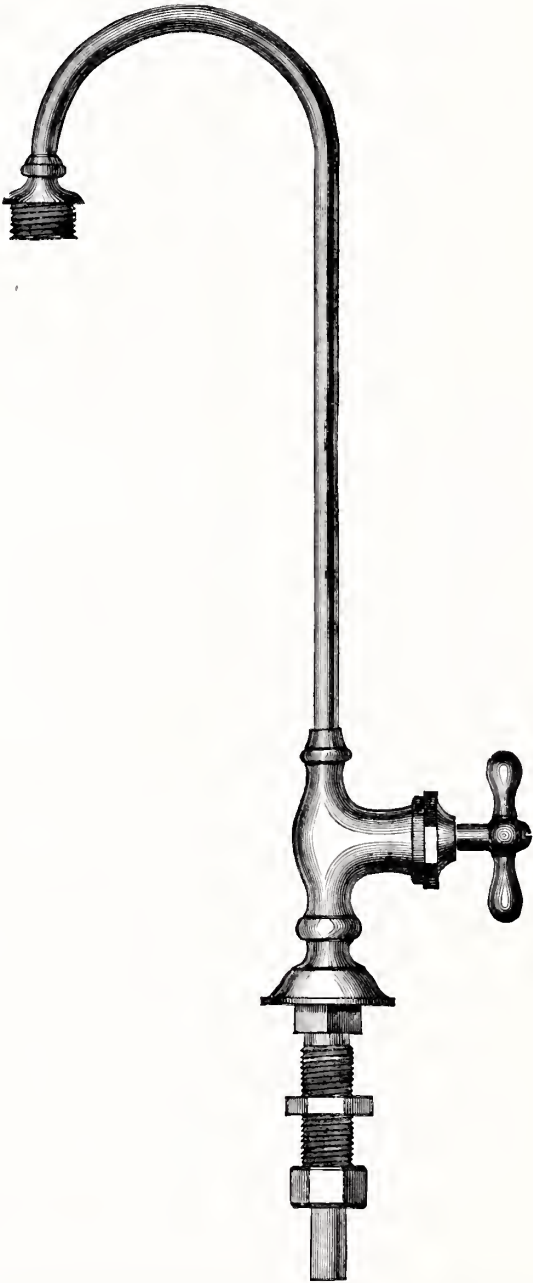


Fig. 813.

			SMALL.	LARGE.				SMALL.	LARGE.
Fig. 812.	Finished . . .	Per doz.	\$30.00	34.00	Fig. 813.	Finished . . .	Per doz.	\$33.00	37.00
" 812.	Nickel Plated . . .	"	34.00	38.00	" 813.	Nickel Plated . . .	"	37.00	41.00
" 812.	Silver Plated . . .	"	45.00	49.00	" 813.	Silver Plated . . .	"	48.00	52.00

Add for 4-Arm Handle, per dozen, \$2.00.

# BASIN AND PANTRY COCKS.

## PECK'S IMPROVED.

No. 2. PANTRY COCK.

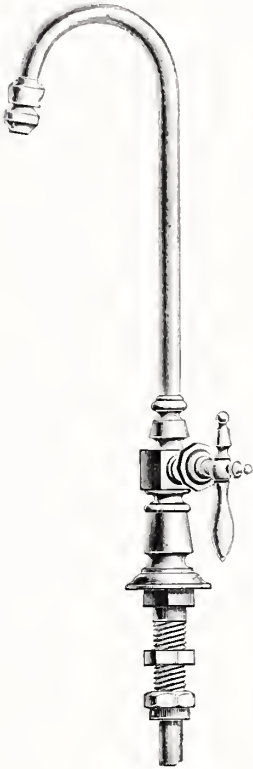


Fig. 814.

No. 4. BASIN COCK.

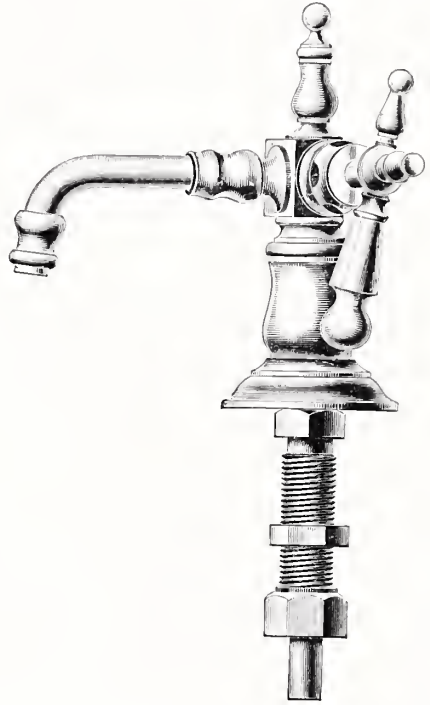


Fig. 815.

No. 1. BASIN COCK.

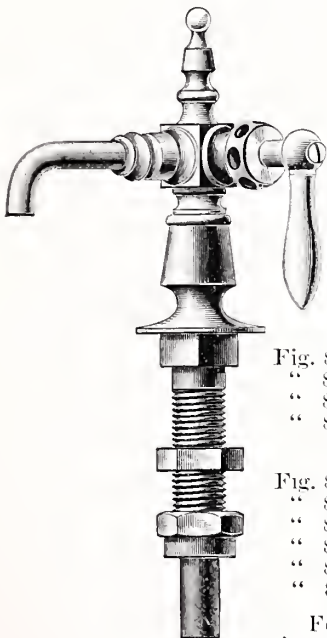


Fig. 816.

No. 2. BASIN COCK.

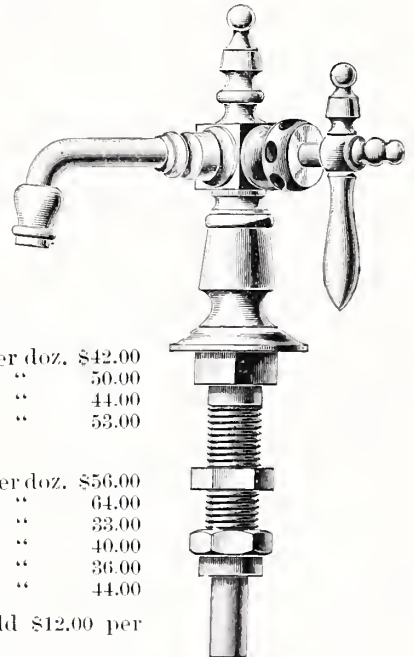


Fig. 817.

### PANTRY COCKS.

Fig. 814.	Finished, Plain . . . . .	Per doz.	\$42.00
" 814.	Nickel Plated, Plain . . . . .	"	50.00
" 814.	Finished, Hose End. . . . .	"	44.00
" 814.	Nickel Plated, Hose End. . . . .	"	53.00

### BASIN COCKS.

Fig. 815.	Finished . . . . .	Per doz.	\$56.00
" 815.	Nickel Plated. . . . .	"	64.00
" 816.	Finished . . . . .	"	33.00
" 816.	Nickel Plated. . . . .	"	40.00
" 817.	Finished . . . . .	"	36.00
" 817.	Nickel Plated. . . . .	"	44.00

For Ebony or Ivory Handles, add \$12.00 per dozen to List.



DOUBLE COMPRESSION BATH COCKS.

FRONT HANDLES.

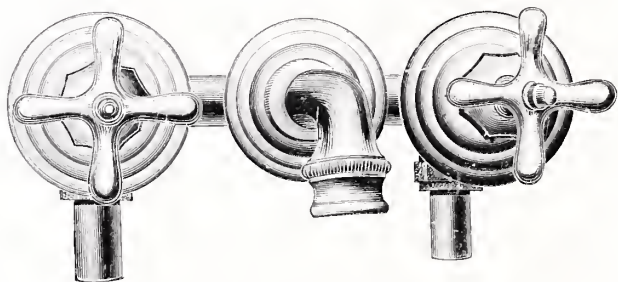


Fig. 818.

Fig. 818.	Finished . . . . .	Each.	\$5.00
" 818.	Nickel Plated . . . . .	"	5.50
" 818.	Silver Plated . . . . .	"	7.00

Add, for Stuffing Box, 50 cents each.

TOP HANDLES.



Fig. 819.

Prices same as Fig. 818.

GEM.

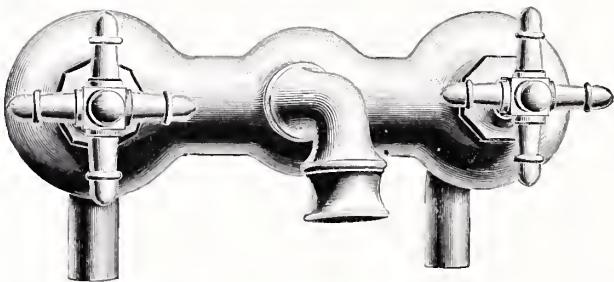


Fig. 820.

Fig. 820.	Finished . . . . .	Each.	\$5.00
" 820.	Nickel Plated . . . . .	"	5.50
" 820.	Silver Plated . . . . .	"	7.00

Above prices include Sprinklers. Add, for Stuffing Box, 50 cents each.

DOUBLE COMPRESSION BATH COCKS.

CONTINUED.

CLUSTER No. 1.

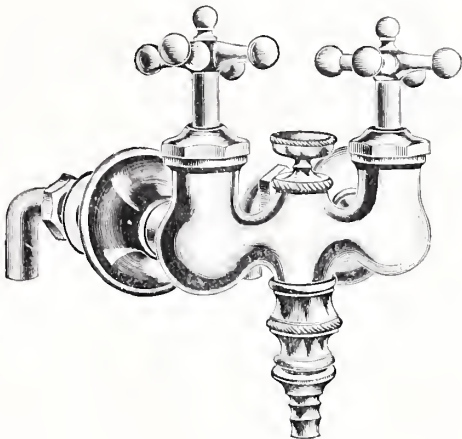


Fig. 821.

Fig. 821.	Finished . . . . .	Each.	\$7.50
" 821.	Nickel Plated . . . . .	"	8.00
" 821.	Silver Plated . . . . .	"	9.50

CLUSTER No. 2.

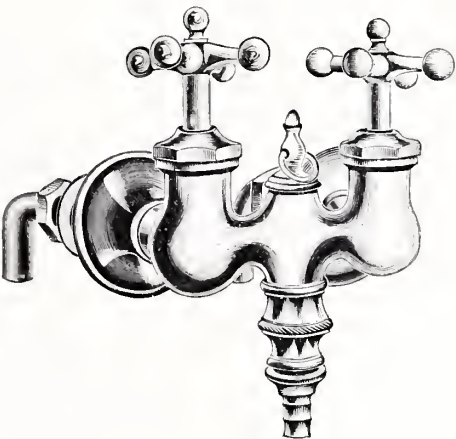


Fig. 822.

CLUSTER No. 3.

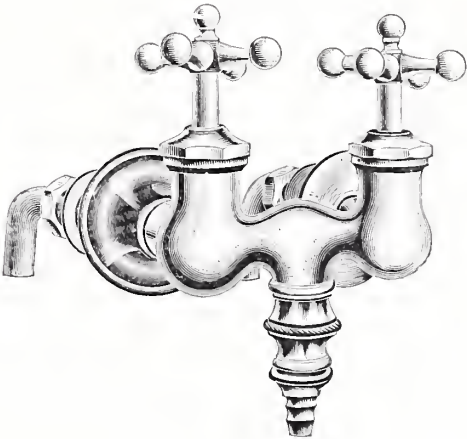


Fig. 823.

			LARGE.	SMALL.
Fig. 822.	Finished . . . . .	Each.	\$7.50	6.50
" 822.	Nickel Plated . . . . .	"	8.00	7.00
" 822.	Silver Plated . . . . .	"	9.50	8.50
" 823.	Finished . . . . .	"	7.00	6.00
" 823.	Nickel Plated . . . . .	"	7.50	6.50
" 823.	Silver Plated . . . . .	"	9.00	8.00

Above prices include Sprinklers. Add, for Stuffing Box, 50 cents each.

# PECK'S IMPROVED DOUBLE BATH COCKS.

TOP HANDLES.

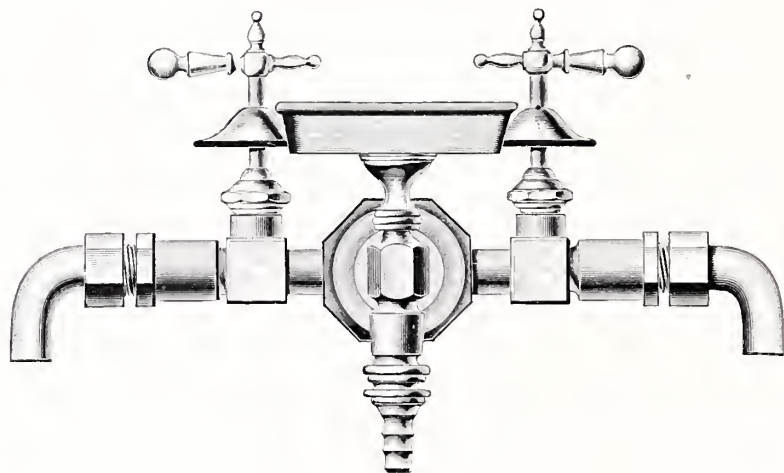


Fig. 824.

Fig. 824.	Finished . . . . .	Each.	\$13.00
" 824.	Nickel Plated . . . . .	"	14.00
" 824.	Silver Plated. . . . .	"	16.00

With Side Handle, same price.

SIDE HANDLES.

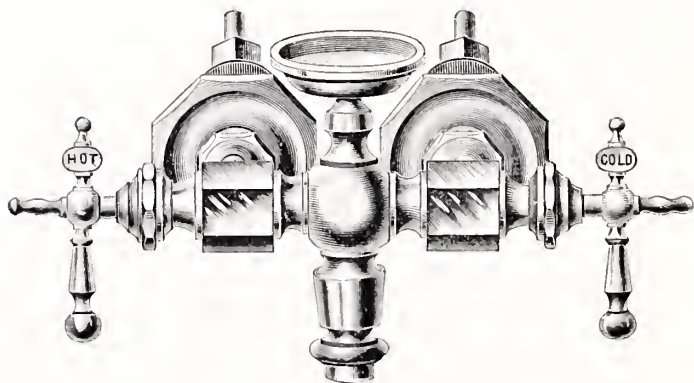
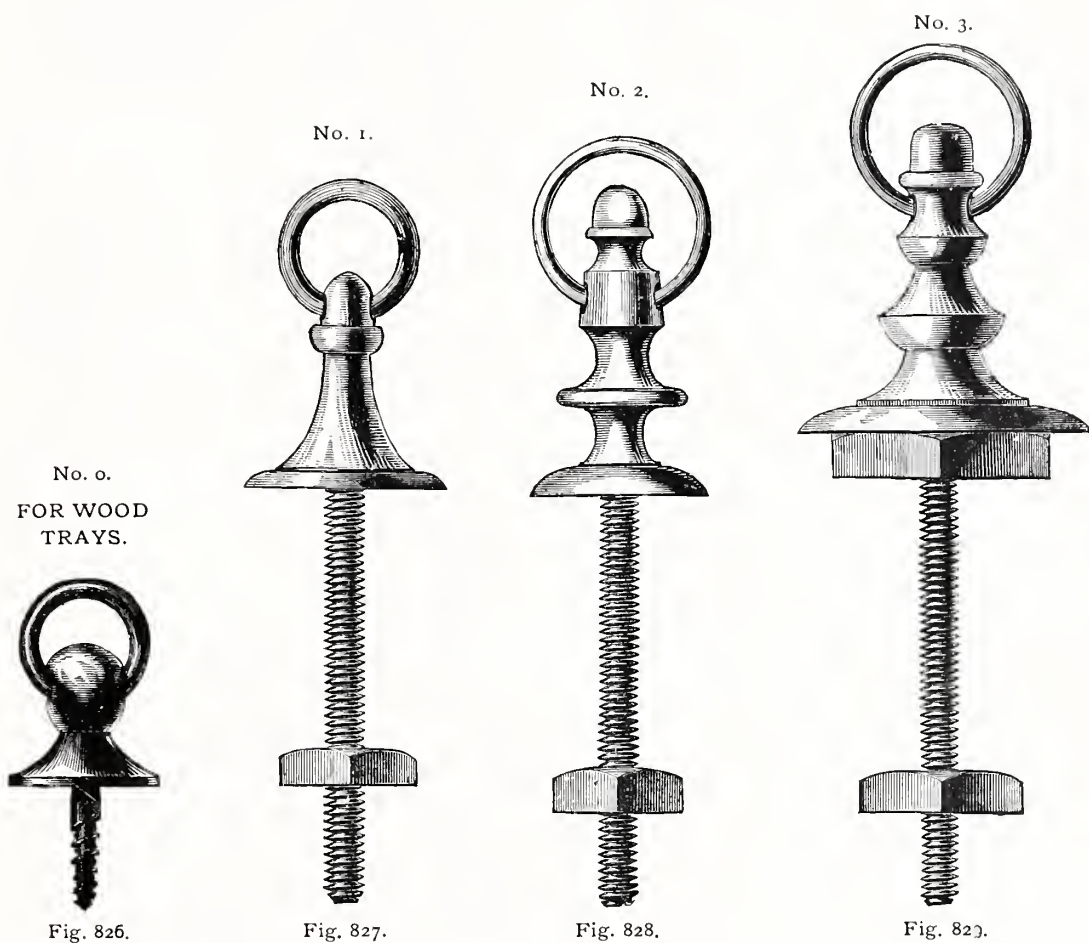


Fig. 825.

Fig. 825.	Finished . . . . .	Each.	\$10.50
" 825.	Nickel Plated . . . . .	"	12.00
" 825.	Silver Plated. . . . .	"	14.00

Above prices include Sprinklers.

## CHAIN STAYS.



CHAIN STAYS — Figs. 826, 827, 828 and 829.

NUMBER. . . . .	0	1	2	3
Finished . . . . . Per dozen.	\$2.00	2.00	3.00	3.50
Nickel Plated . . . . . “	2.50	2.50	3.75	4.25
Silver Plated . . . . . “	3.00	3.00	4.50	5.00



CHAIN STAYS—CONTINUED.

No. 4.

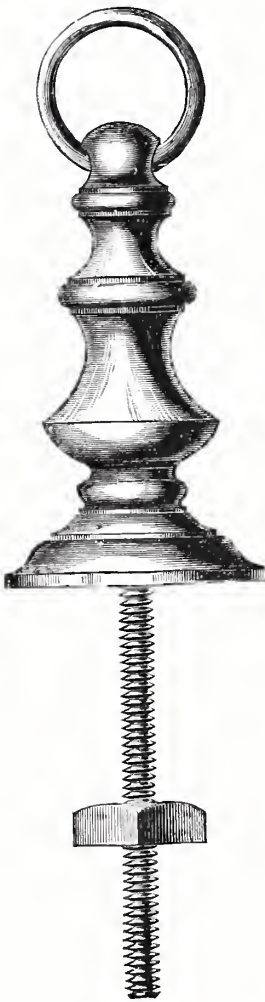


Fig. 830.

No. 5.



Fig. 831.

No. 6.



Fig. 832.

CHAIN STAYS—Figs. 830, 831 and 832.

NUMBER . . . . .	4	5	6
Finished . . . . . Per dozen.	\$5.50	7.00	8.00
Nickel Plated . . . . . “	6.50	8.00	9.00
Silver Plated . . . . . “	7.50	10.00	11.00

## CHAIN STAYS—CONTINUED.

No. 7. WITH RING CUP.

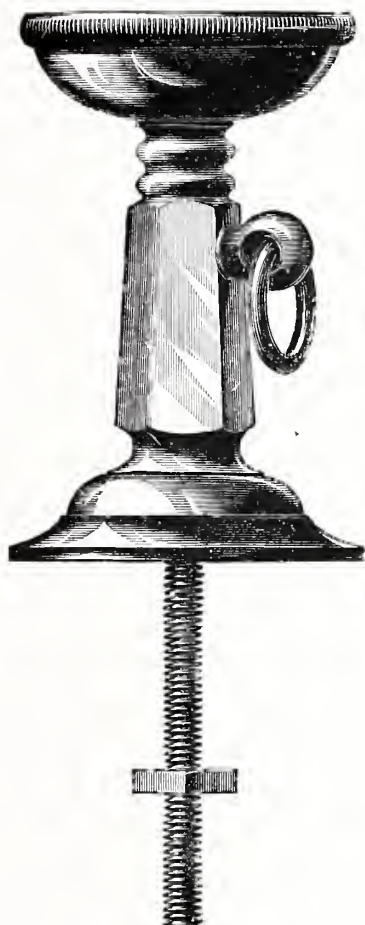


Fig. 833.

No. 8. WITH SOAP CUP AND RING HOLDER.

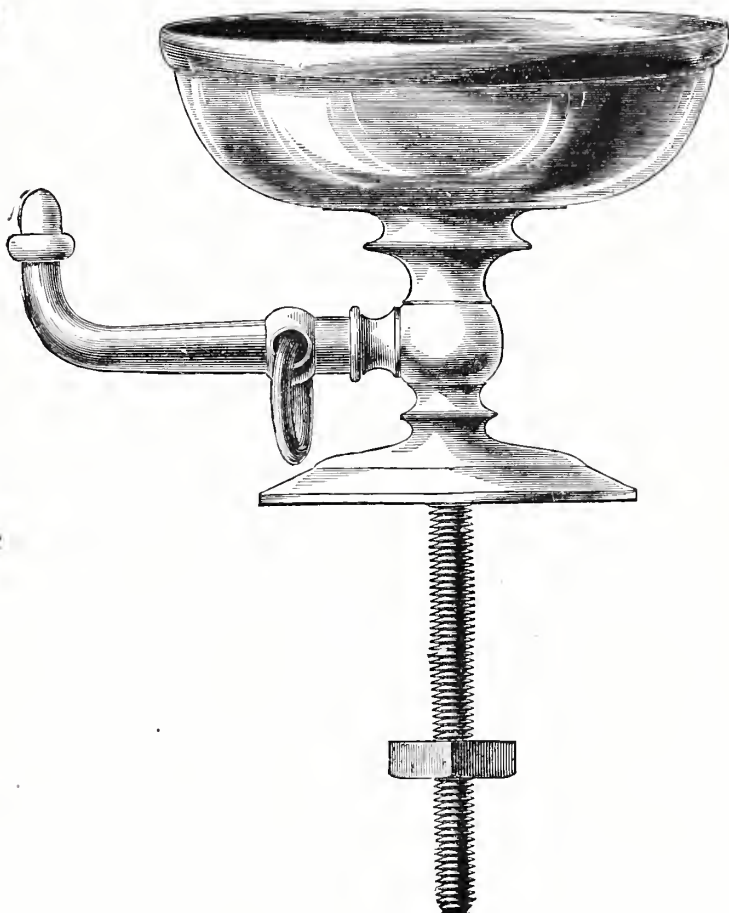


Fig. 834.

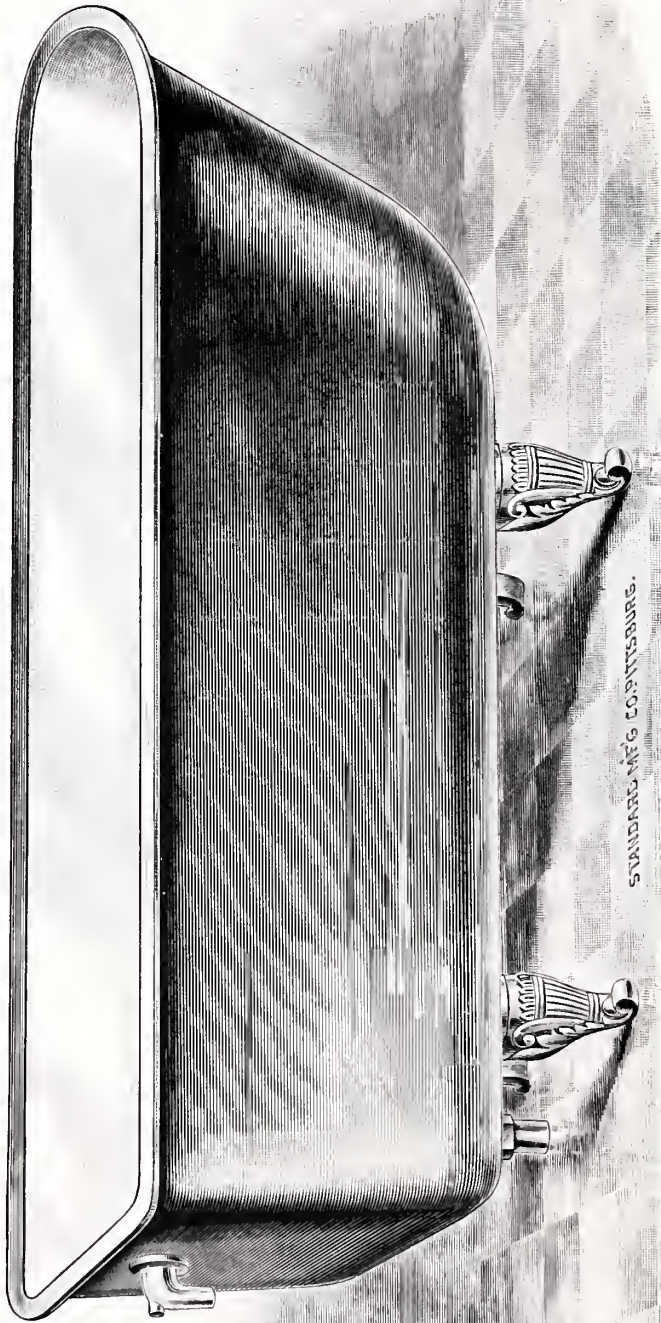
## CHAIN STAYS—Figs. 833 and 834.

NUMBER . . . . .	7	8
Finished . . . . . Per dozen.	\$10 00	24.00
Nickel Plated . . . . . "	12 00	27.00
Silver Plated . . . . . "	14 00	30.00

# PORCELAIN-LINED BATH.

## FRENCH PATTERN.

NICKEL PLATED TRIMMINGS AND RUBBER STOPPER.



STANDARD & CO. PATENTERS.

Fig. 835.

Dimensions, 4, 4½, 5, 5½ and 6 feet long, 23 inches wide, 19 inches deep.		From Floor to top of Rim, 25 inches.	
	FEET.	4	5
Length . . . . .	4	4½	5½
Painted . . . . .		\$18.00	22.00
Porcelain-Lined. . . . .		34.00	42.00
Add, if with Wood Rim . . . . .		9.00	10.00
Add, if Tapped at Bottom for Iron Pipe, Hot and Cold Water Supply and Waste, \$1.50.			11.00
			12.00

6  
26.00  
50.00  
12.00







# STANDARD PORCELAIN ENAMELED BATH.

## ALBION PATTERN.



Fig. 837.

LENGTH . . . . .	4½	5	5½
Polished Hardwood Rim, Bottom Supply, Outlet in centre, Nickel Plated Trimmings, Porcelain Enamelled . .	\$84.00	\$89.00	\$94.00
If without Wood Rim, deduct . . . . .	10.00	11.00	12.00
Polished Brass Legs, add \$3.00 each. Nickel Plated Brass Legs, add \$3.50 each.			

# PORCELAIN-LINED BATH.

ALBION PATTERN.

REAR CENTRE OUTLET.



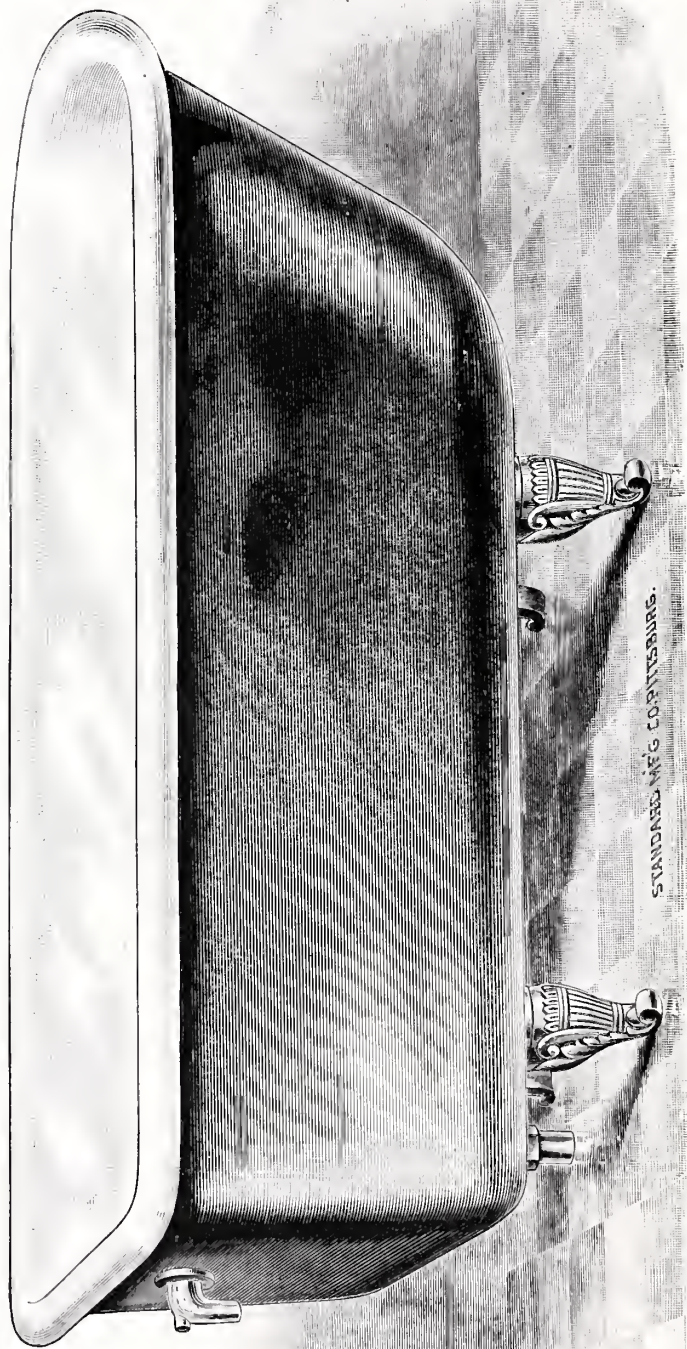
Fig. 838.

Dimensions, 4½, 5 and 5½ feet long, 25 inches wide, 19 inches deep. From Floor to top of Wood Rim, 27 inches.	
LENGTH . . . . .	5½
Porcelain-Lined . . . . .	102.00
If without Wood Rim, deduct . . . . .	12.00
Add, if with Polished Brass Legs, \$3.00 each. Nickel Plated Brass Legs, \$3.50 each.	



PORCELAIN ENAMELED ROLL RIM BATH.

FRENCH PATTERN.



STANDARD METAL CO. PATENT.

Fig. 839.

LENGTH . . . . .	4½	5	5½
Porcelain Enameled. . . . .	\$54.00	60.00	66.00
Bath finished outside in Ivory White, add \$20.00. Ivory White with Gold Bands, add \$25.00. Decorated with Flower Border or Japan Lilies, add \$25.00.			

Polished Brass Legs, add \$3.00 each. Nickel Plated Brass Legs, \$3.50 each. Electro-Bronzed Legs, add \$1.00 each.

PORCELAIN ENAMELED ROLL RIM BATH.

FRENCH PATTERN.

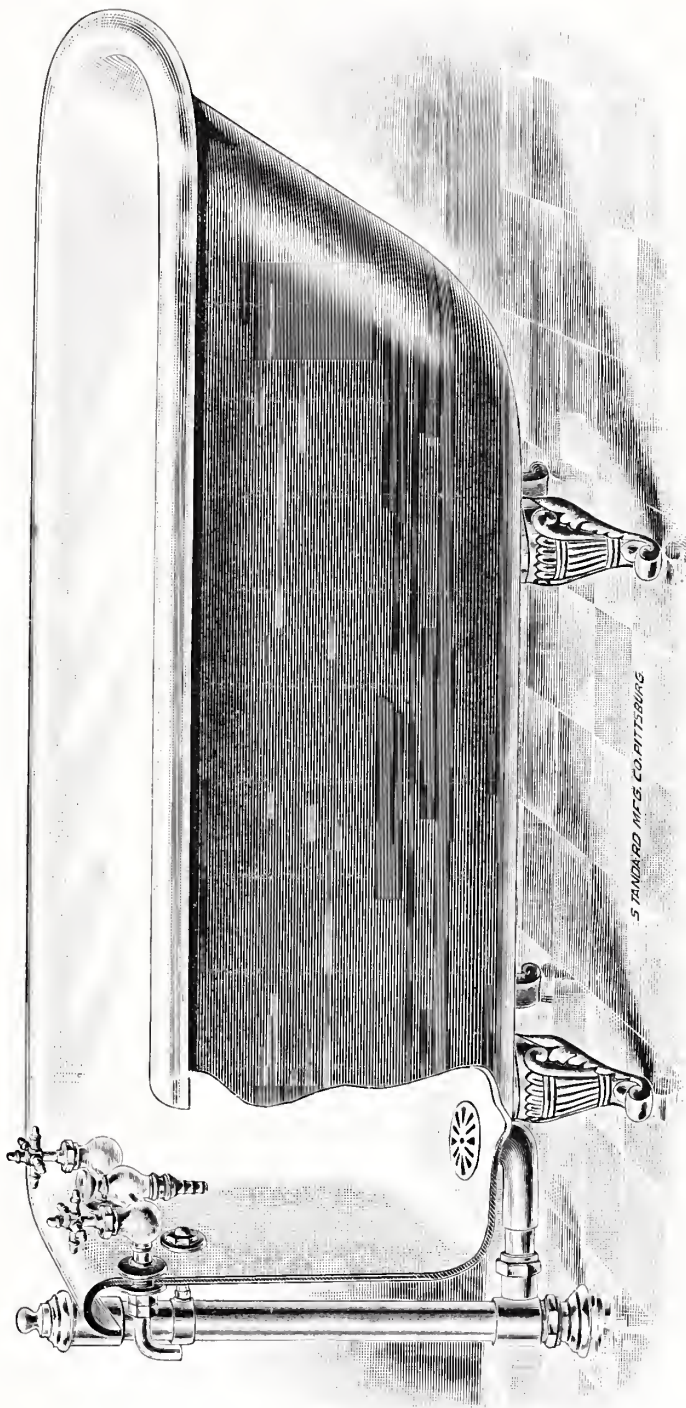


Fig. 840.

Enamelled Roll Rim Bath with Nickel Plated Compression Double Bath Cock and Imperial Waste and Overflow.

LENGTH . . . . .	4½	5	5½
Porcelain Enamelled, with Nickel Plated Trimmings . . . . .	\$72.00	78.00	84.00
“ “ all Nickel Plated Fittings . . . . .	79.00	85.00	91.00

Bath finished and decorated on exterior same as Fig. 839.



PORCELAIN ENAMELED ROLL RIM BATH.  
ALBION PATTERN.



Fig. 841.

LENGTH . . . . .	5	4½	5
Porcelain Enameled, with all Polished Brass Fittings . . . . .	108.00	\$104.00	112.00
“ “ “ Nickel Plated Brass Fittings . . . . .	118.00	114.00	122.00
Polished Brass Legs, add \$3.00 each, Nickel Plated Brass Legs, add \$3.50 each, Electro-Bronzed Legs, add \$1.00 each.			
Bath finished and decorated on exterior as per Fig. 839.			

PORCELAIN ENAMELED ROLL RIM BATH.

MADELINE PATTERN.

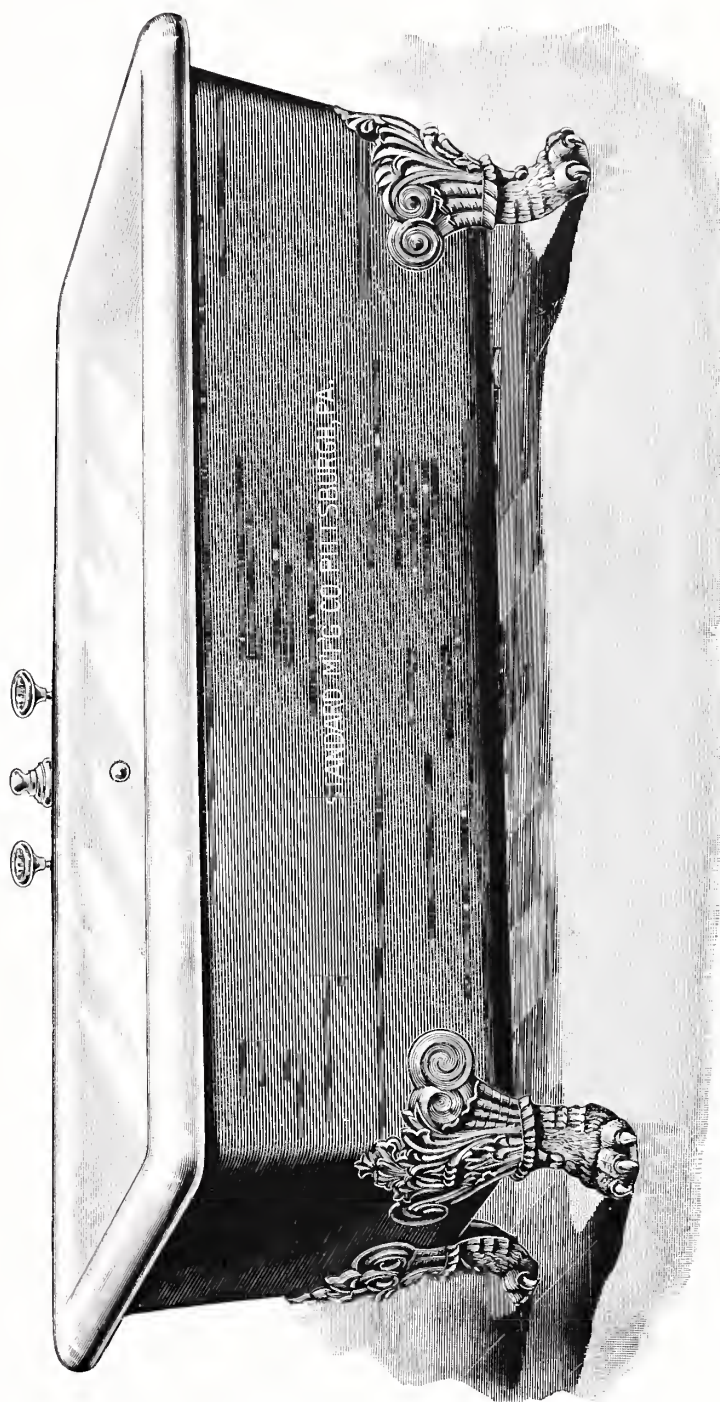


Fig. 842.

The Madeline Bath with our new pattern short "Lion's Paw" Leg, forms a most attractive and ornamental design. Finished on the exterior in Ivory White and decorated with Flowers, it is exceedingly rich and artistic. Furnished with Bell Supply Fittings and Imperial Waste and Overflow. Outlet in centre only.

LENGTH . . . . .	4 $\frac{1}{2}$	5	5 $\frac{1}{2}$
Porcelain Enameled with all Polished Brass Fittings . . . . .	\$106.00	110.00	114.00
" " Nickel Plated Brass Fittings . . . . .	116.00	120.00	124.00
Polished Brass Legs, add \$46.00 per set of four. Nickel Plated Brass Legs, add \$50.00. Electro-Bronzed Legs, add \$6.00. Bath finished and decorated on exterior as per Fig. 839.			



STEEL-CLAD BATH.

FRENCH PATTERN.



Fig. 843.

Dimensions, 4 feet 6 inches, 5 feet 3 inches, 5 feet 9 inches, and 6 feet, by 26 inches wide outside of Rim ; 20 inches deep.  
Height from Floor to top of Rim, 26 inches.

WEIGHT OF COPPER	12	14	16
Size, 4 feet 6 inches . . . . .	\$30.00	31.50	33.00
" 5 feet 3 inches . . . . .	31.00	33.00	35.00
" 5 feet 9 inches . . . . .	31.50	33.50	35.50
" 6 feet . . . . .	33.00	35.00	37.00

When ordering, state whether Cherry or Oak Rim.

# STEEL-CLAD BATH.

## ROMAN PATTERN.

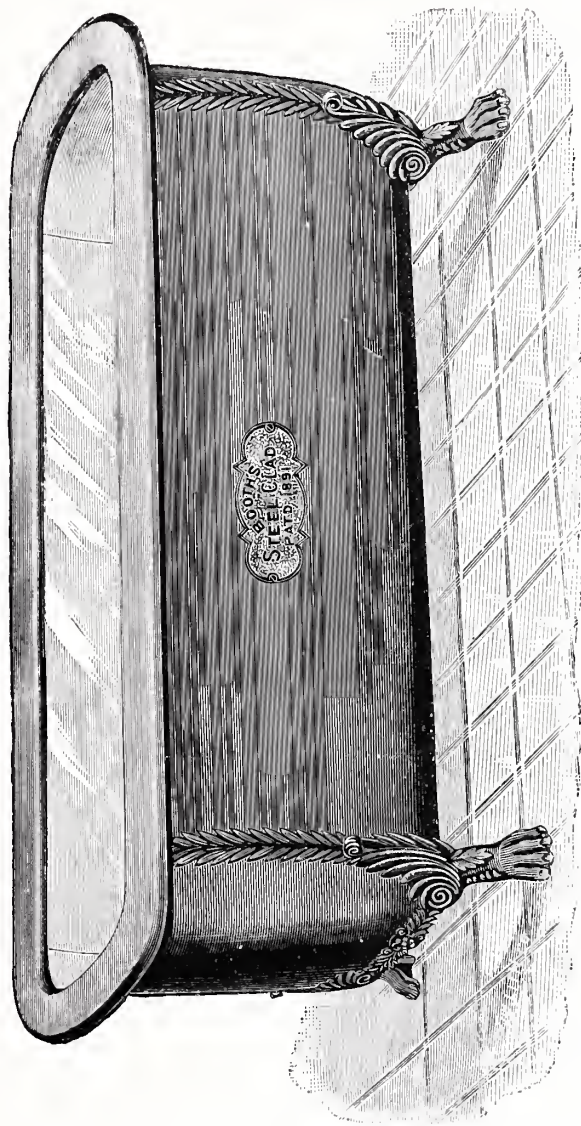


Fig. 844.

Dimensions, 4 feet 6 inches, and 5 feet by 26 inches outside of Rim ; 20 inches deep. Height from Floor to top of Rim, 26 inches.			
Weight of Copper. . . . .	12	14	16
Size, 4 feet 6 inches . . . . .	\$31.50	33.50	35.50
Size, 5 feet . . . . .	33.50	35.50	37.50

These Baths are Copper-Lined and handsomely decorated. When ordering, state whether Cherry or Oak Rim.



COPPER-LINED FIBRE BATH.

COPPER-LINED.

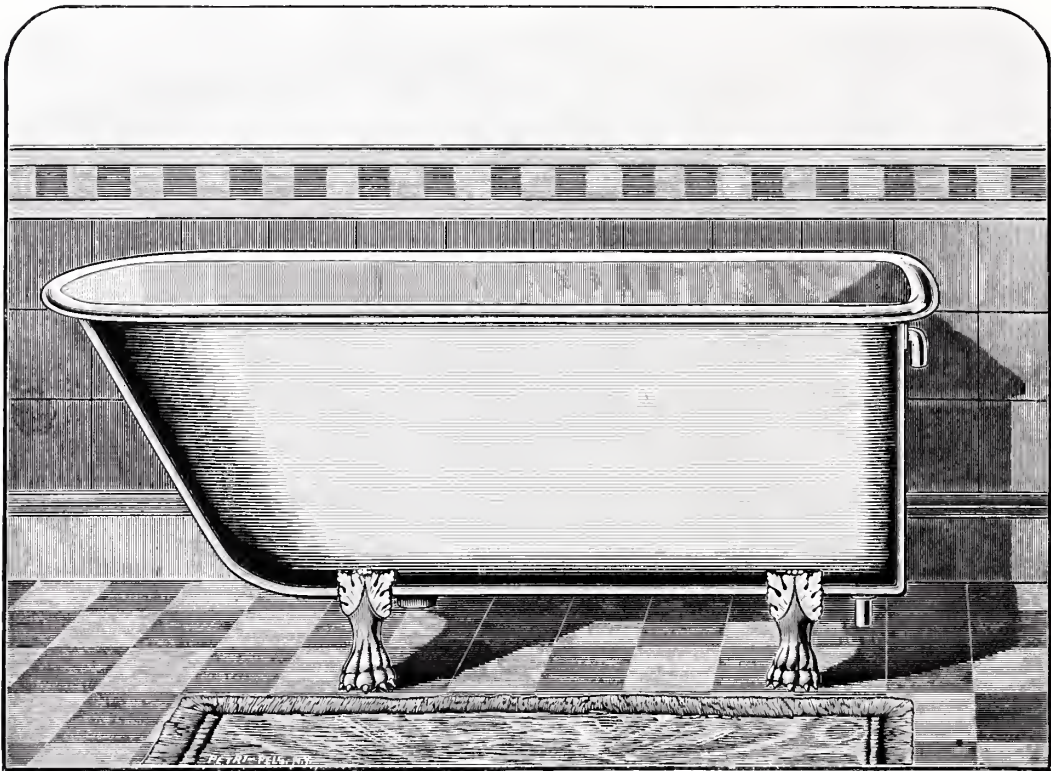


Fig. 845.

COPPER-LINED FIBRE BATH — Fig. 845.

WEIGHT OF COPPER . . . . . OUNCES.	12	14	16
5-Foot Bath . . . . .	\$31.00	33.00	35.00
6-Foot Bath . . . . .	33.00	35.00	37.00

Add for Polished Brass Legs . . . . . Each. \$3.00  
Add for Nickel Plated Brass Legs . . . . . " 3.50

# “PLYMOUTH” BATH FIXTURES.

IN COPPER-LINED BATH.

No. 1. “PLYMOUTH” FIXTURE.

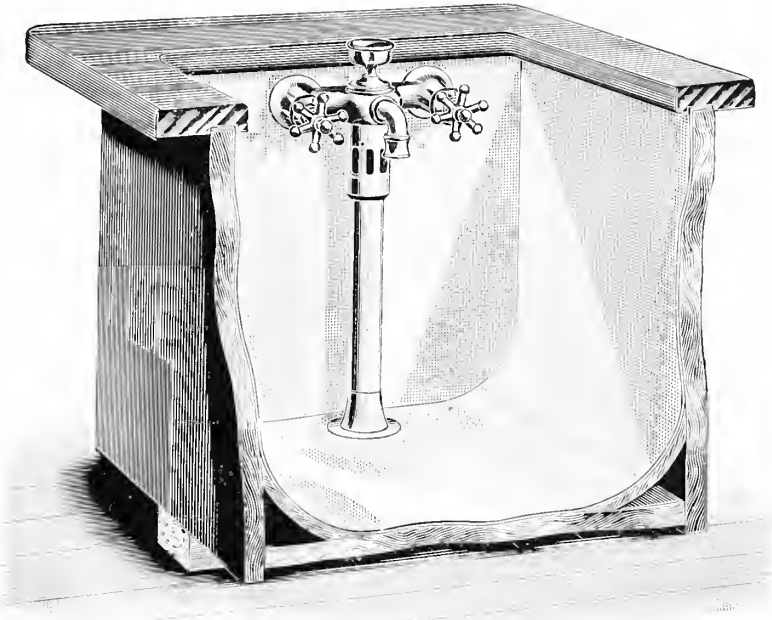


Fig. 846.

This cut shows a Copper-Lined Bath, having a “Plymouth” Bath Fixture attached complete. The cocks in this fixture are compression, simple, and easily manipulated by the bather, as the handles project into the bath. This particular pattern cock is also adapted for Fibre and Copper-Lined Steel Baths.

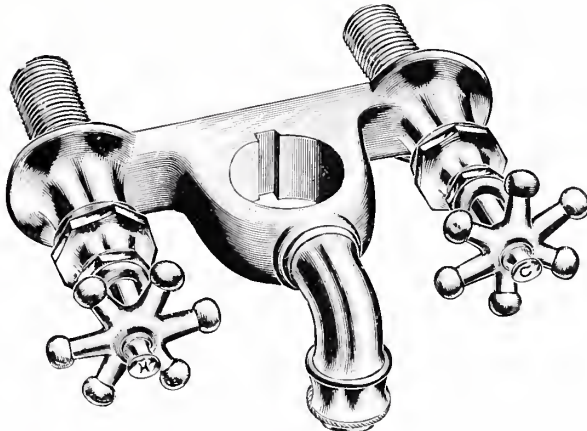


Fig. 847.

Price of “Plymouth” Fixture complete, Nickel Plated, for any kind of Bath, \$15.00.

“PLYMOUTH” BATH FIXTURES.

No. 2. “PLYMOUTH” FIXTURE.

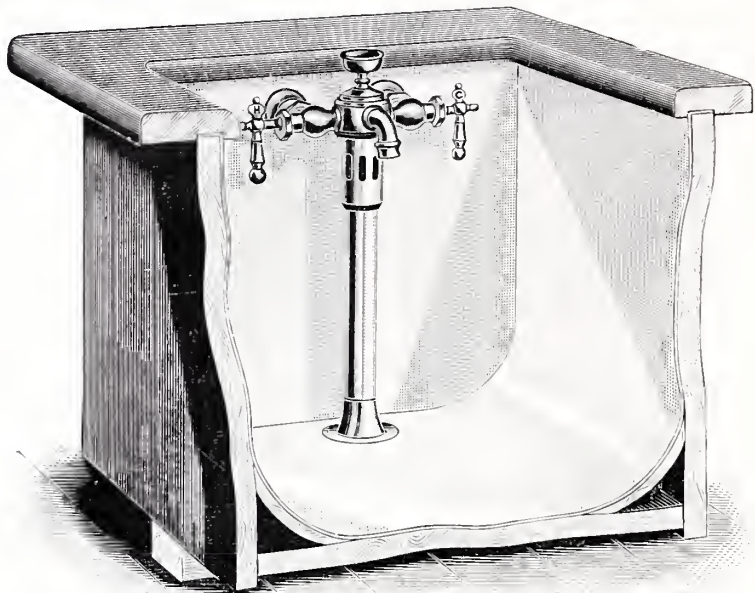


Fig. 848.

No. 3. “PLYMOUTH” FIXTURE.

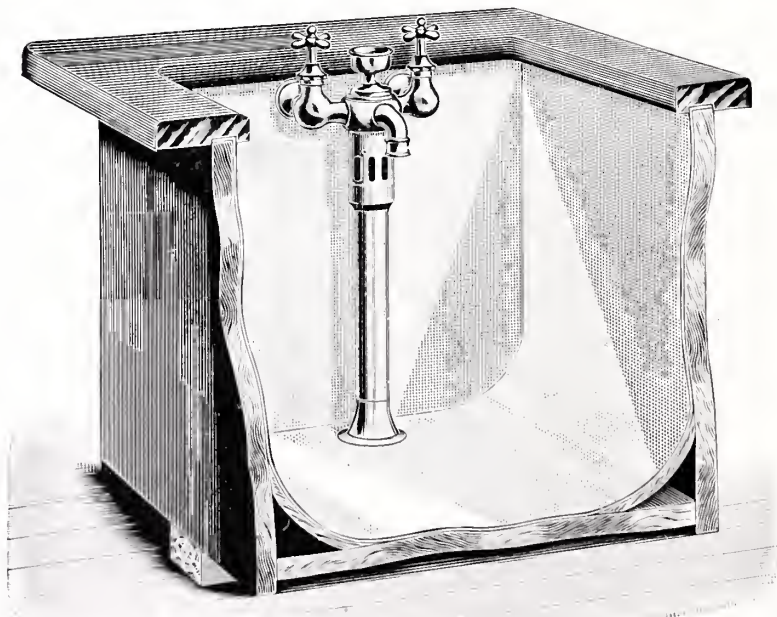


Fig. 849.

Price of Fixture complete, Nickel Plated, . . . . . \$15.00.



# “PLYMOUTH” BATH FIXTURES.

IN PORCELAIN-LINED BATH.

No. 2. “PLYMOUTH” FIXTURE.

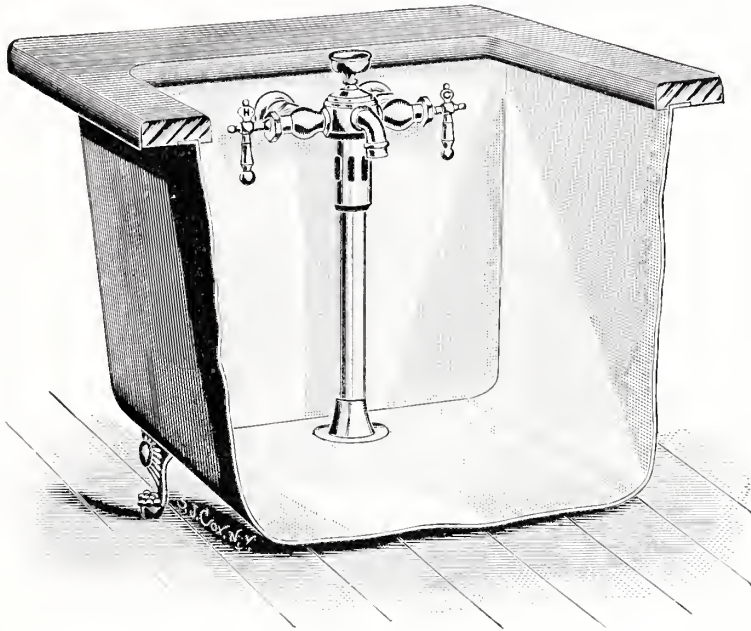


Fig. 850.

No. 3. “PLYMOUTH” FIXTURE.

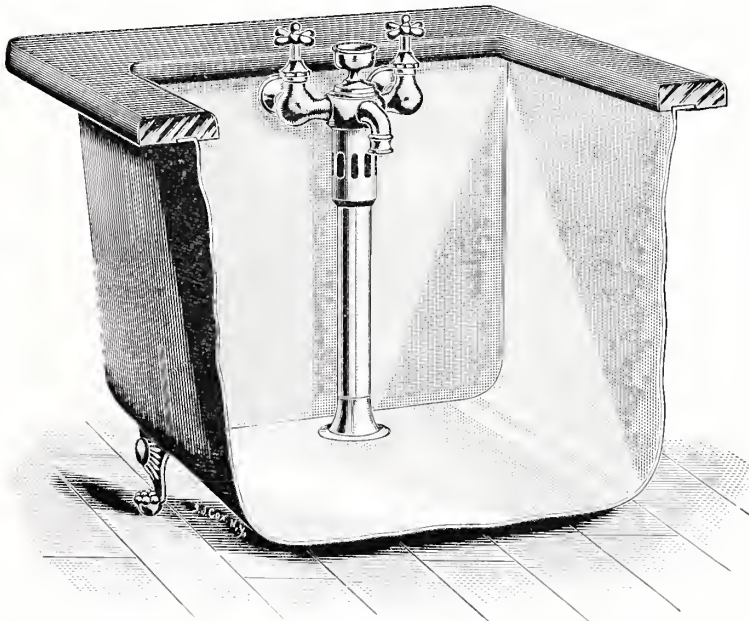


Fig. 851.

Price, Fixture complete . . . . . \$18.00





ENAMELED IRON ROLL RIM BATH.

FRENCH PATTERN.

OXFORD WASTE AND SHAMPOO COMBINATION.

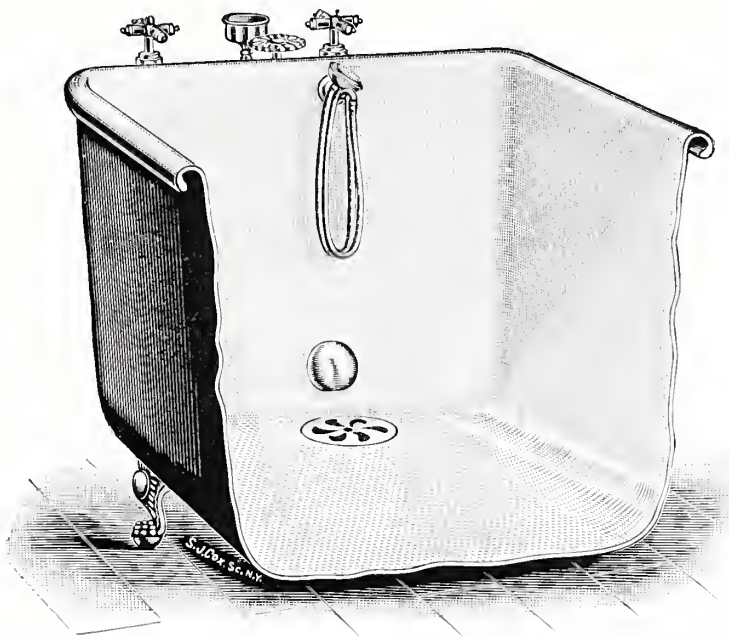


Fig. 853.

To operate the Shampoo, turn the Valve Handle in front of the Waste Pull down. This is a Double Valve and reverses the flow from the Bell Supply to the Nozzle on which the Rubber Tube is connected.

LENGTH. . . . . FEET.	4½	5	5½	6
Price, complete, all Polished Brass Fittings . . . . .	\$85.00	90.00	95.00	100.00
“ “ “ Brass Fittings Nickel Plated . . . . .	95.00	100.00	105.00	110.00

For Nickel Plated Brass Trap above Floor, add . . . . \$6.00  
Nickel Plated Brass Legs . . . . . Each. 3.00

# ENAMELED IRON ROLL RIM BATH.

## FRENCH PATTERN.

OXFORD BATH WASTE AND BELL SUPPLY, WITH SHOWER COMBINATION.

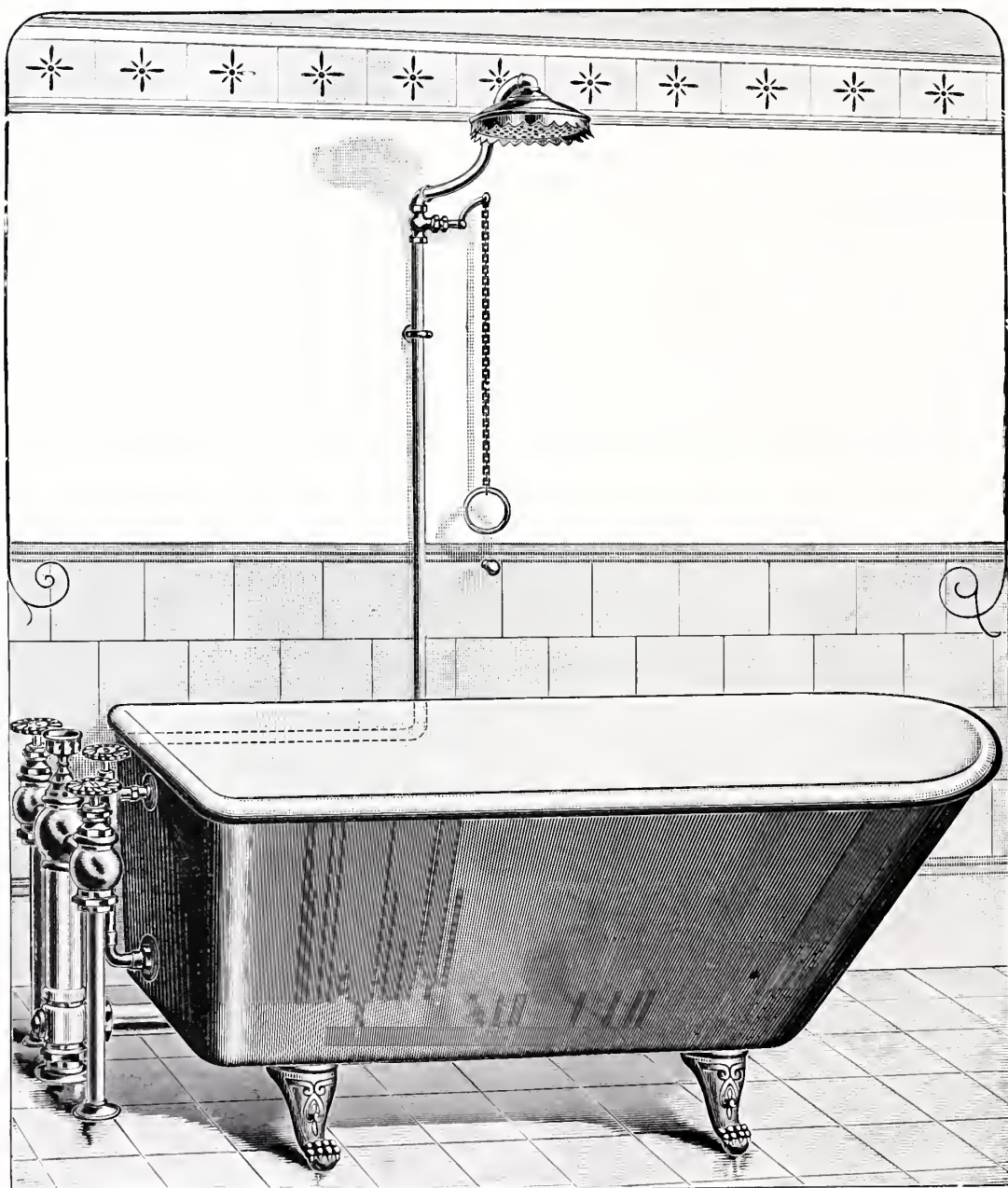


Fig. 854.

With this fixture the Shower is supplied with Hot and Cold Water by an additional Valve, which closes the Bell Supply and turns the water through the Shower Pipe. To operate Shower, turn handle of Valve down, put the Ring on Wall Hook, and temper the water.

LENGTH . . . . .	FEET.	4½	5	5½	6
Price, complete, all Polished Brass . . . . .		\$100.00	105.00	110.00	115.00
“ “ “ Nickel Plated . . . . .		110.00	115.00	120.00	125.00

For Nickel Plated Brass Trap above Floor, add \$6.00. Nickel Plated Brass Legs, each, \$3.00.



# ENAMELED IRON ROLL RIM SITZ BATH.

OXFORD WASTE AND BELL SUPPLY, WITH SPRAY COMBINATION.

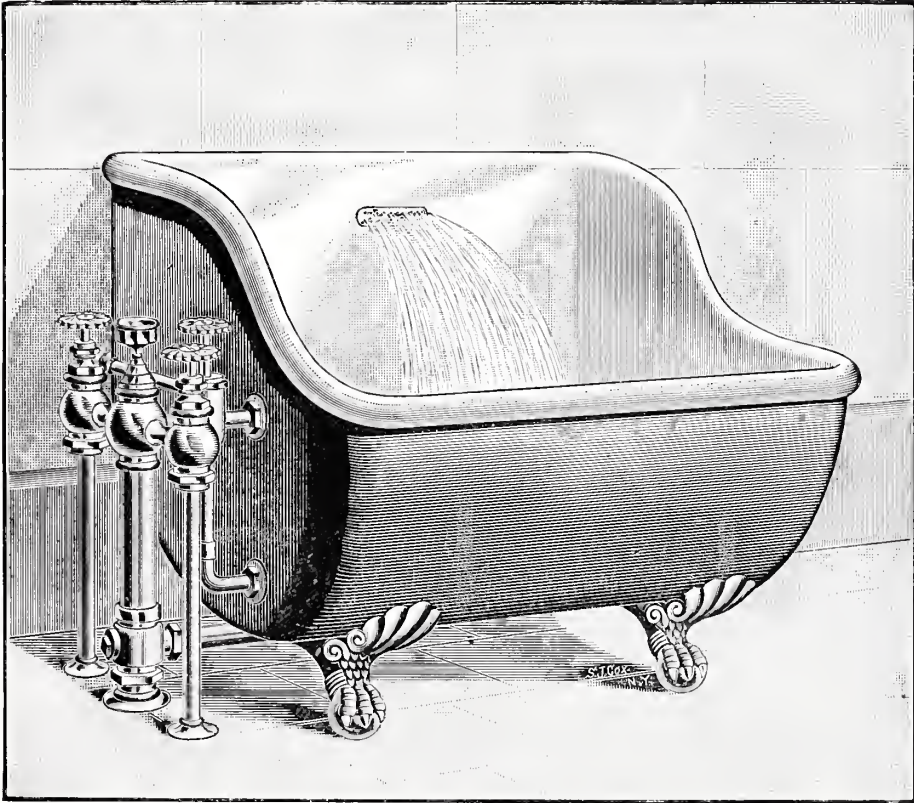


Fig. 855.

Price, complete, all Polished Brass Fittings . . . . .	\$70.00
“ “ “ Nickel Plated “ . . . . .	80.00

If without Spray Attachment, deduct \$10.00.

Polished Brass Legs, add \$8.00. Nickel Plated Brass Legs, add \$10.00.



ENAMELED IRON ROLL RIM FOOT BATH.

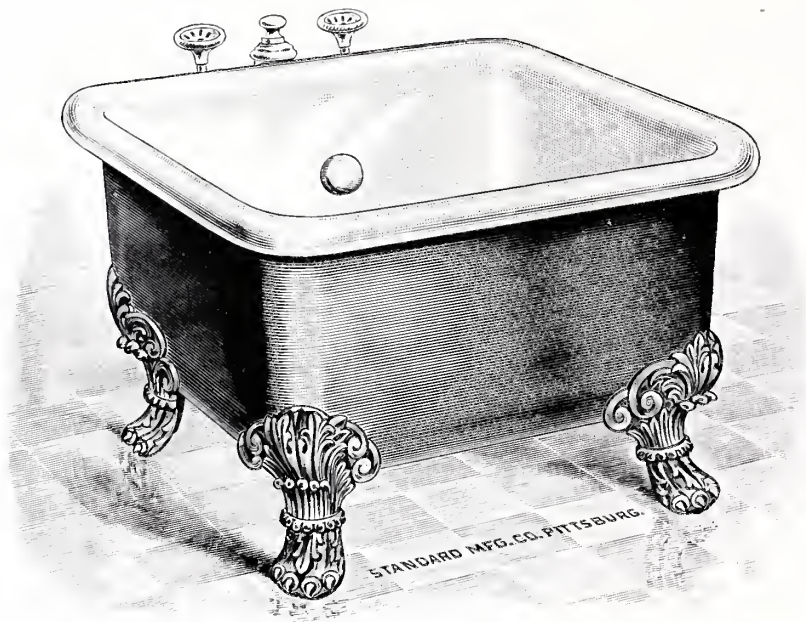


Fig. 856.

Price, Nickel Plated Trimmings . . . . .	\$35.00
“ all Nickel Plated Fittings . . . . .	45.00
Nickel Plated Brass Legs, add . . . . . Each.	3.00
Polished Brass Legs, add . . . . . “	2.50
Electro-Bronzed Legs, add . . . . . “	.60
Finished in Ivory White and decorated with Gold Bands, or Flowers add . . . . . “	15.00

NOTICE.

All Baths can be furnished with Bosses at bottom for either Lead or Iron Hot and Cold Water Supply Pipes, whether shown in cuts or not.

When ordering, please state what size Pipe is to be used, as we cut threads to suit Iron Pipe when desired.

If the size is not mentioned it is understood that the Baths are required without Iron Bosses.

All Couplings to Wastes will be sent straight unless ordered bent.

# "PARAGON" BATH WASTE AND TRAP.

"PARAGON" COPPER BATH.

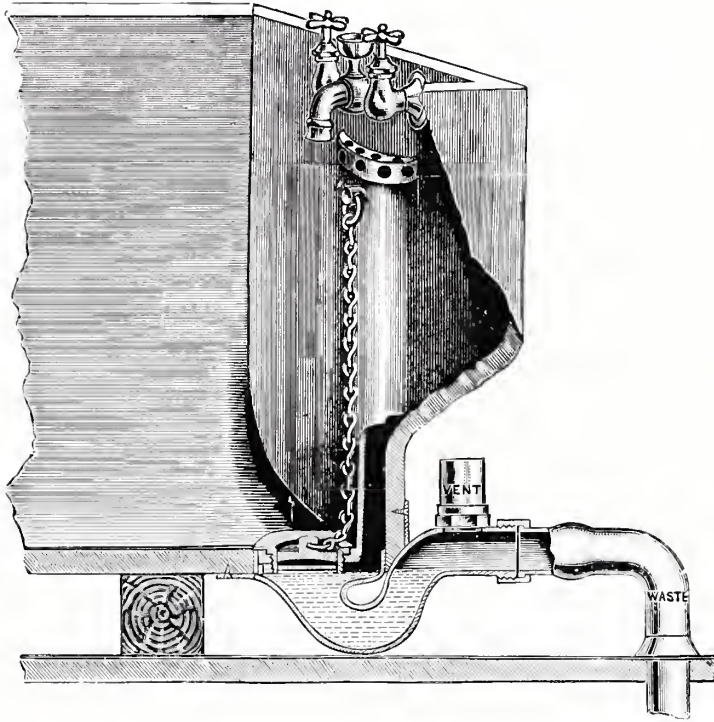


Fig. 857.

## TEN DECIDED ADVANTAGES OVER A LEAD TRAP AND COMMON OVERFLOW.

1. The Trap is made heavy, of Brass, thus making it secure against destruction, while a leaden trap is always liable to have a hole poked through it or gnawed by rats, or otherwise destroyed, which means the ruin of the ceiling beneath it.

2. The Trap is soldered in the Tub by the tub maker, making it complete and handsome, and there is no occasion to have the Tub scratched and dented by workmen getting inside of it.

3. The Trap being fastened in the Tub, and of Brass, it cannot be tipped or stretched by the workman and the water seal destroyed, as frequently is the case with leaden traps.

4. The Trap being on the Tub, dispenses with all the fouling surface, so there are no bad odors arising from that source.

5. The Trap being on the Tub, you know that a Trap is used (beyond any question) and you can always see the water in it.

6. The Plug Socket is removable, so that the Trap can be cleared by anybody, if it should become stopped.

7. The Overflow is of Nickel Plated Brass, half circle shape, and is soldered against the end of the Tub, inside of it, entering the Trap directly back of the Stopper.

8. The Overflow has a removable Strainer on the Top of it, so that it can be cleaned at pleasure, and thus prevent any bad smell arising from that source, whereas in a regular copper tub the leaden overflow cannot be cleaned, and it becomes clogged with putrid matter and becomes a disease-breeding, valueless thing before it has been used one year, and its use should be discontinued on basins and bath tubs to advance the sanitary condition of the house.

9. No Defective Putty Overflow Joint at the back of the Tub to leak and destroy the ceiling beneath it, as it has in hundreds of instances with the old style copper tub having a leaden overflow behind.

10. It costs less money than a leaden trap if the work is done as it should be, and it makes a decidedly better, handsomer and more sanitary job in every way.

Price of Nickel Plated Paragon Brass Trap and Overflow, put in the tub complete as shown, in addition to the cost of any size Tub, \$10.00.

## SHOWING THE OVERFLOW AND DISCHARGE OPENINGS IN THE TOP OF THE TRAP.

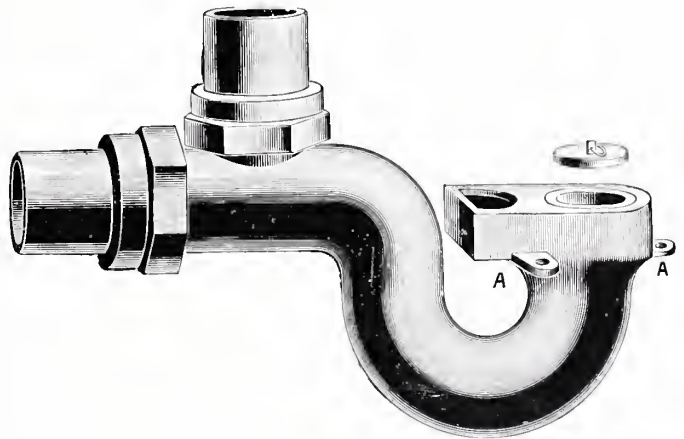


Fig. 858.

COPPER BATHS.

NEW YORK PATTERN.

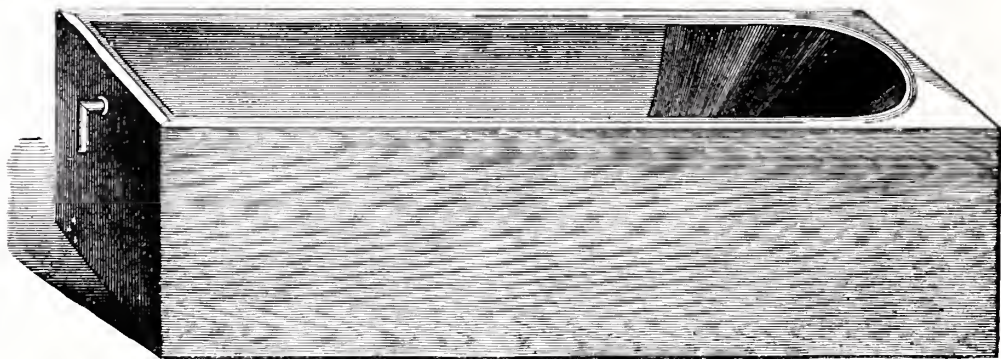


Fig. 859.

Size, 5 feet, 5 feet 6 inches, or 6 feet long, 24 inches wide and 19½ deep, outside measure.

WEIGHT OF COPPER TO SQ. FOOT . . . . . Oz.	10	12	14	16	18	20
Price . . . . .	\$15.00	16.00	18.00	20.00	22.00	24.00

FRENCH PATTERN.

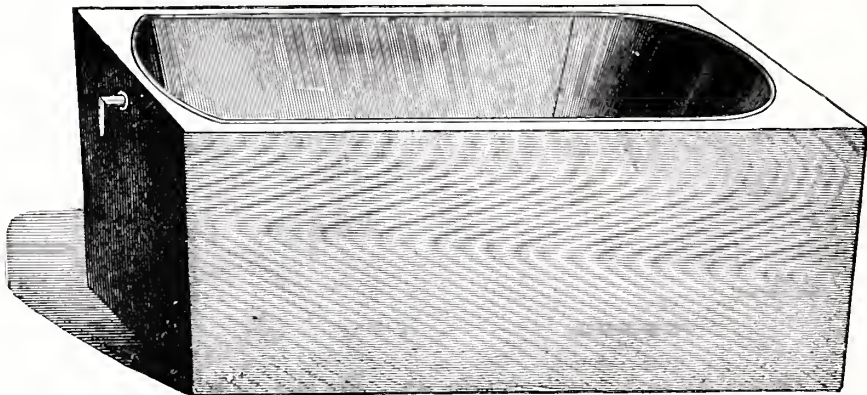


Fig. 860.

26 inches wide at top, 23 inches wide at bottom, 22 inches deep, outside measure.

WEIGHT OF COPPER TO SQ. FOOT . . . . . Oz.	10	12	14	16	18	20
4½ feet long . . . . .	\$16.00	17.00	19.00	21.00	23.00	25.00
5 " " . . . . .	18.00	19.00	21.00	23.00	25.00	27.00
5½ " " . . . . .	20.00	21.00	23.00	25.00	27.00	29.00
6 " " . . . . .	22.00	23.00	25.00	27.00	29.00	31.00

ZINC BATHS.

We make any size Zinc Baths, to order only. Prices on application.

We can fit any of the above Baths with Rubber Plug and Socket, Overflow and Connections for Iron Pipe, at an additional cost of \$5.00 net.



COPPER BATHS, ETC.

SITZ BATH.

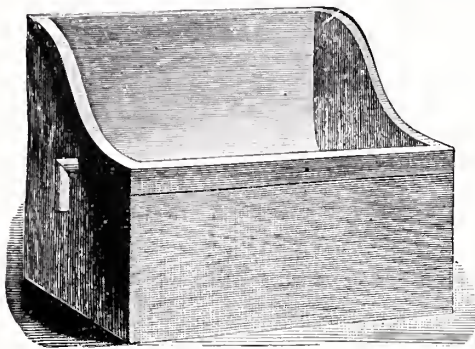


Fig. 861.

Size, 25x22, front 12 inch high.

Weight of Copper, Oz.	10	12	14	16	18	20
Each . . . . .	\$10.00	11.00	12.00	13.00	14.00	15.00

COPPER BALL.



Fig. 863.

SIZE . . . . . IN.	4	5	6	7	8	9	10	11	12
Per dozen . . . . .	\$4.50	6.00	7.00	10.50	80 cents per pound.				

COPPER BIDET.

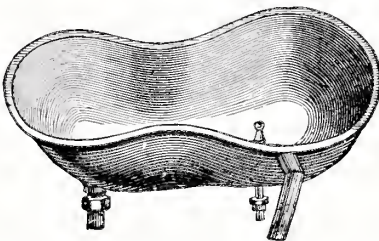


Fig. 865.

Each . . . . .	\$7.00
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FOOT BATH.

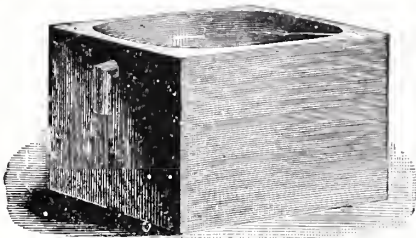


Fig. 862.

Size, 16x20 inches, 10 inches deep.

Weight of Copper, Oz.	10	12	14	16	18	20
Each . . . . .	\$7.50	8.50	9.50	10.50	11.50	12.50

COPPER CLOSET PAN.

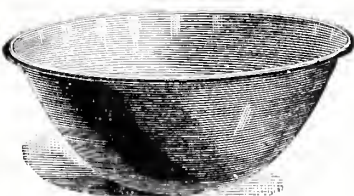


Fig. 864.

14 oz. Copper. . . . .	Per doz.	\$7.00
16 oz. . . . .	"	8.00
18 oz. . . . .	"	9.00
20 oz. . . . .	"	10.00
24 oz. . . . .	"	12.00

COPPER AIR CHAMBER.

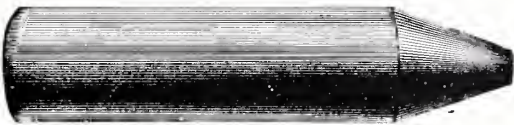


Fig. 866.

SIZE . . . . . IN.	2½x16	3x16	3½x16	4x16
Each . . . . .	\$4.00	4.50	5.50	6.00
Extra Heavy. . . . .	4.75	5.25	6.50	7.25

COPPER PANTRY SINKS.

SQUARE.

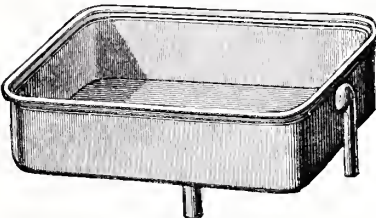


Fig. 867.

OVAL.

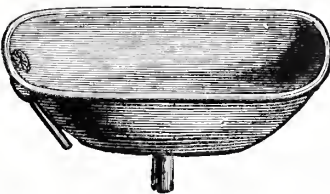


Fig. 868.

SIZE . . . . . INCHES.	12x18	12x20	14x16	14x20	14x24	16x24	16x30	18x30
Fig. 867 . . . . .	\$4.50	5.00	4.50	6.00	7.00	8.00	10.00	11.00
" 868 . . . . .	6.00	6.50	6.00	7.50	9.00	10.00	12.00	13.00



COPPER SHOWERS.

No. 1. PLAIN.



Fig. 869.

Fig. 869 . . . . . Per dozen. \$12.00

No. 2. FANCY.

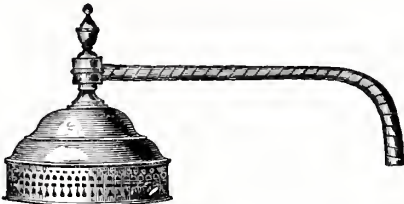


Fig. 870.

Fig. 870 . . . . . Per dozen. \$15.00

No. 3. FANCY. FLANGE AND THIMBLE.

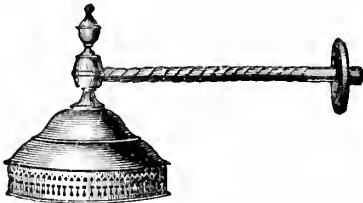


Fig. 871.

Fig. 871 . . . . . Per dozen. \$17.50

No. 4. TUBULAR.



Fig. 872.

Fig. 872 . . . . . Per dozen. \$27.00

No. 5. FANCY TUBULAR.

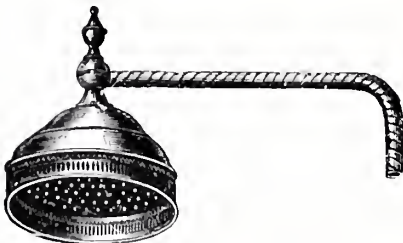


Fig. 873.

Fig. 873 . . . . . Per dozen. \$30.00

No. 6. FANCY TUBULAR. FLANGE AND THIMBLE.

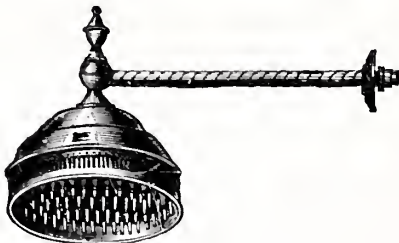


Fig. 874.

Fig. 874 . . . . . Per dozen. \$32.00

## SHOWER BATHS.

SHOWER WITH SHAMPOO AND SUPPLY PIPES TO FLOOR.



Fig. 875.

Price, Nickel Plated, \$25.00. If without Shampoo, deduct \$5.00.

# SHOWER BATHS.

SHOWER, WITH THERMOMETER, SHAMPOO, CURTAIN RING, AND SUPPLY PIPES TO FLOOR.

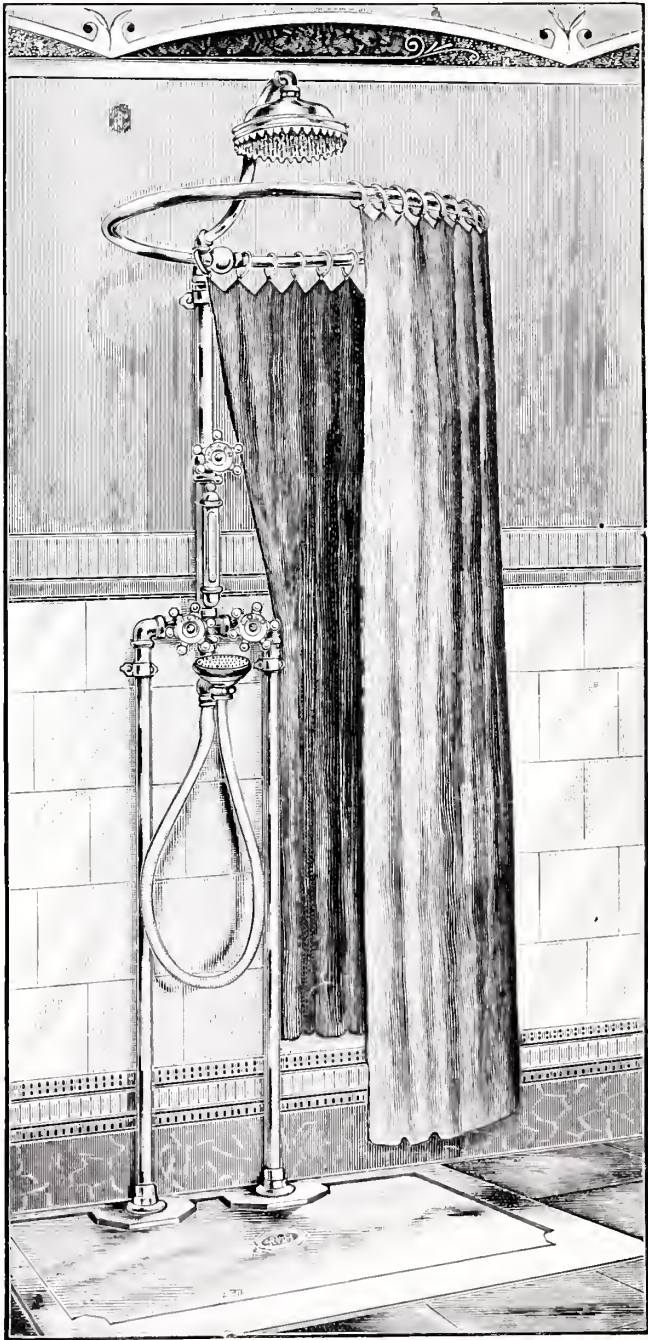


Fig. 876.

Nickel Plated . . . . .	\$60.00	If without Curtain Ring, deduct . . .	\$12.00
Rubber Curtain, extra . . . . .	10.00	“ “ Shampoo, deduct . . . . .	5.00



# SHOWER BATHS.

SHOWER WITH SHAMPOO, CURTAIN RING, AND SUPPLY PIPES TO FLOOR.

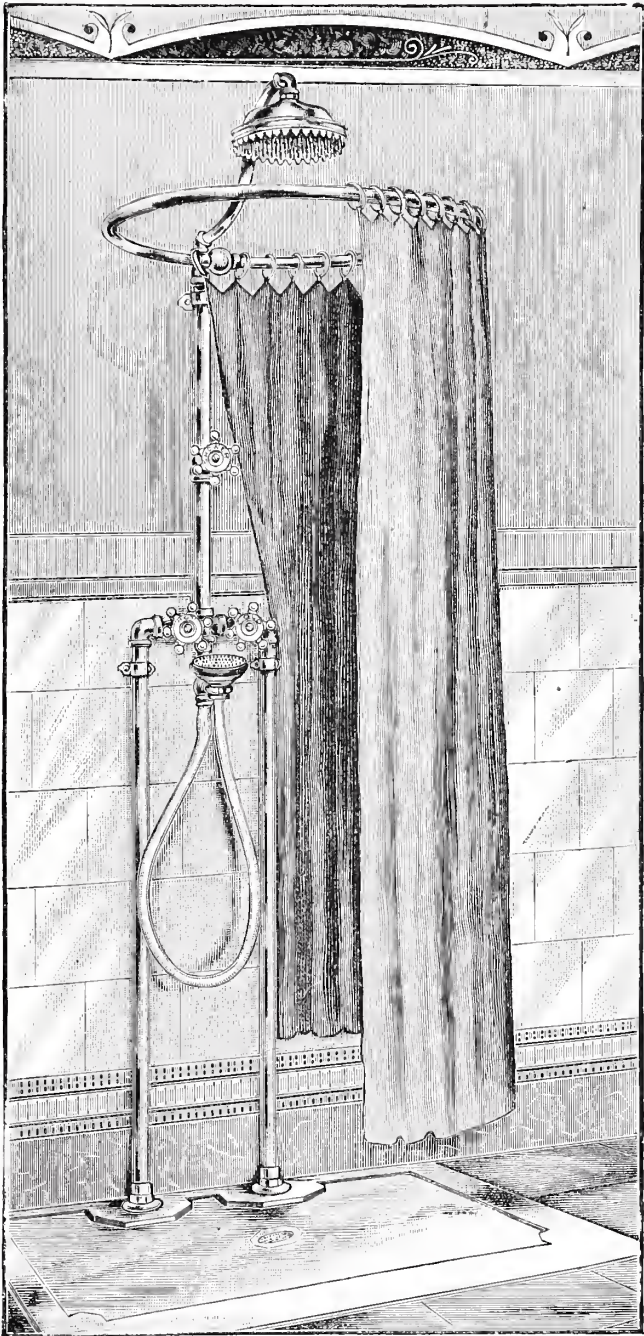


Fig. 877.

Nickel Plated . . . . .	\$40.00	If without Curtain Ring, deduct . . . . .	\$12.00
Rubber Curtain, extra . . . . .	10.00	“ “ Shampoo, deduct . . . . .	5.00



SHOWER BATHS.

RING SHOWER WITH THERMOMETER, SHAMPOO, CURTAIN RING, AND SUPPLY  
PIPES TO FLOOR.

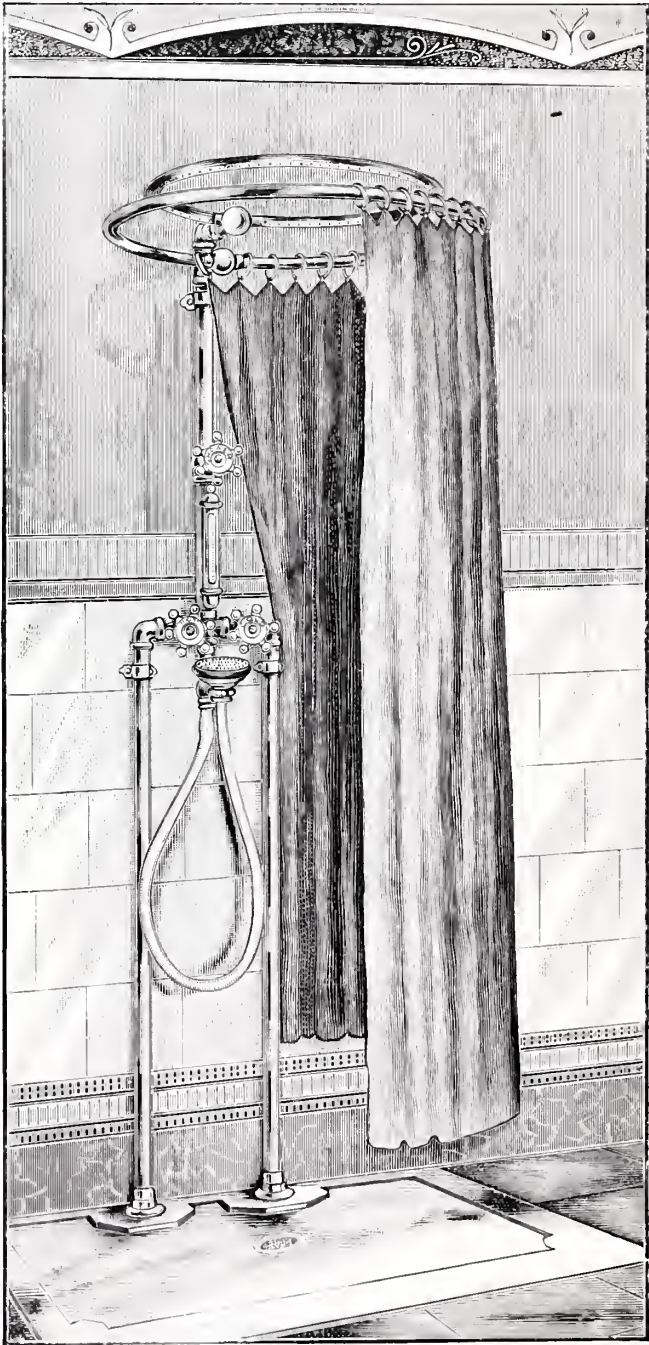


Fig. 878.

Nickel Plated . . . . .	\$60.00	If without Curtain Ring, deduct . . .	\$12.00
Rubber Curtain, extra. . . . .	10.00	“ “ Shampoo, deduct . . . . .	5.00

# SHOWER BATHS.

COMBINATION NEEDLE AND SHOWER.

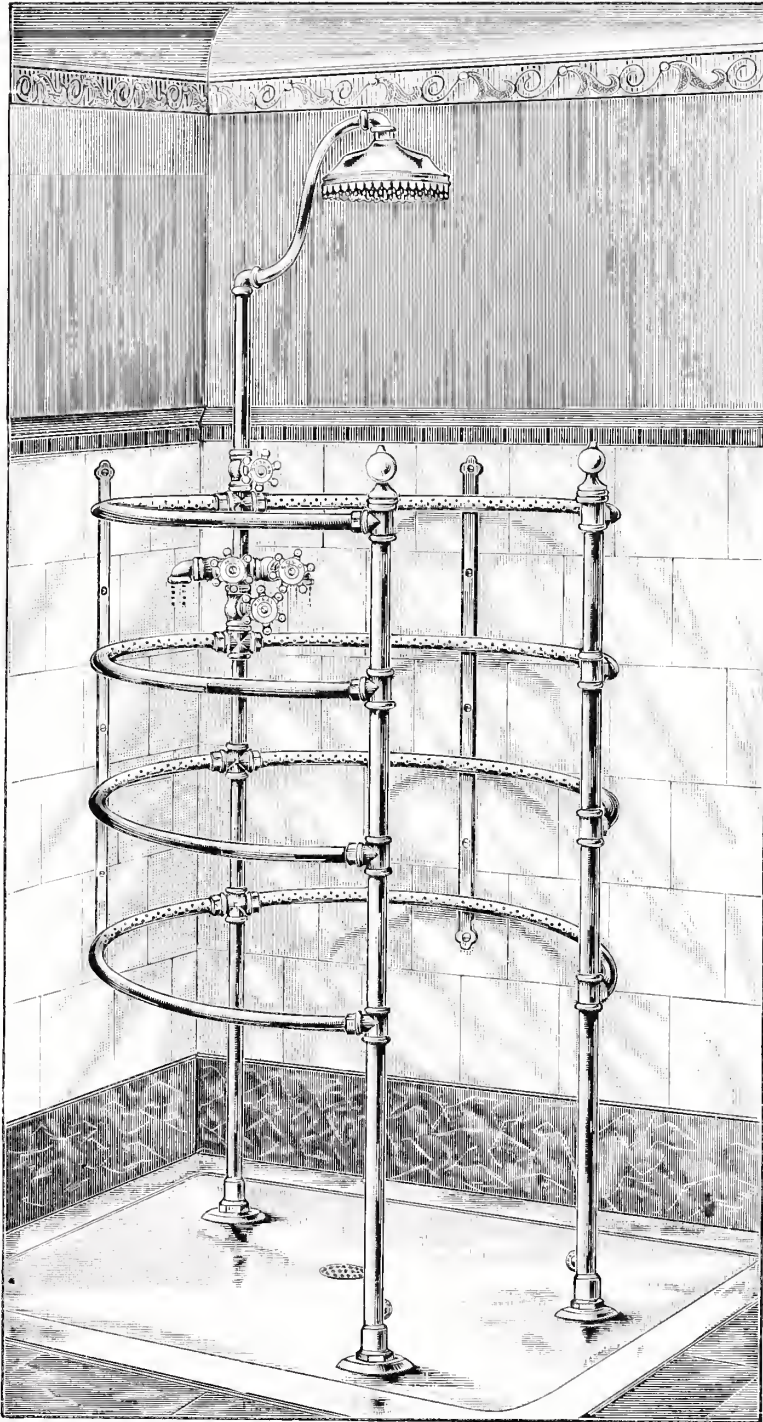


Fig. 879.

Hot and Cold Water, Nickel Plated . . .	\$125.00	If with Curtain Ring, add . . . . .	\$20.00
Cold Water only, Nickel Plated . . . .	110.00	Rubber Curtains, per pair . . . . .	20.00





## BATH-ROOM FIXTURES.

BRASS SOAP CUP.

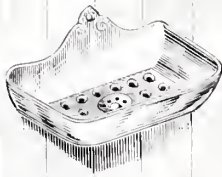


Fig. 881.

Fig. 881. Polished Brass and Lacquered, \$2.00

" 881. " " " Nickel Plated, 2.00

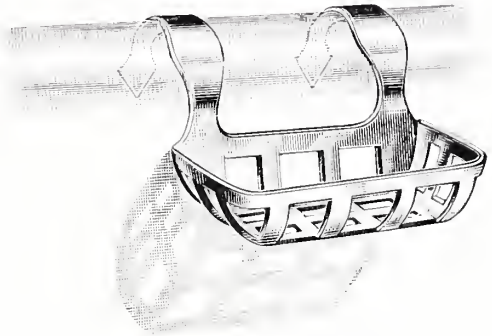
BRASS SOAP CUP,  
FOR ROLL RIM BATHS.

Fig. 882.

Fig. 882. Polished Brass and Lacquered . . \$2.00

" 882. " " " Nickel Plated . 2.00

BRASS SPONGE HOLDER.

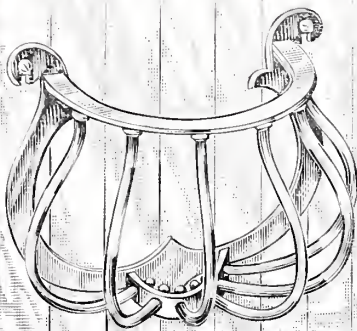


Fig. 883.

Fig. 883. Polished Brass and Lacquered . . \$9.00

" 883. " " " Nickel Plated . 9.00

" 883. If with Solid Brass Back, Nickel Plated, \$10.00

BRASS PAPER HOLDER.

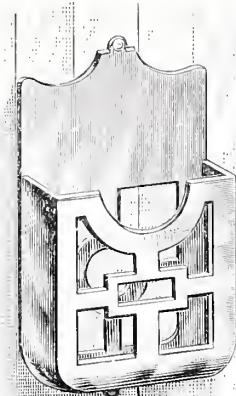


Fig. 884.

Fig. 884. Polished Brass and Lacquered . \$6.00

" 884. " " " Nickel Plated 6.00



STANDING BATH WASTE AND HOOK.

BOSTON PATTERN.

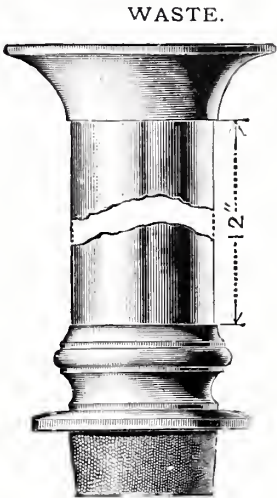


Fig. 885.

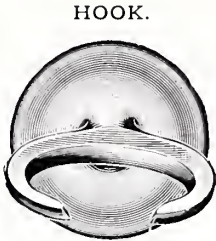


Fig. 886.



Fig. 887.

SIZE . . . . .	INCHES.	1½		
Figs. 885, 886. Finished, Hook included . . . . .	Per dozen.	\$36.00		
“ 885, 886. Nickel Plated, Hook included . . . . .	“	40.00		
SIZE . . . . .	INCHES.	1½	1½	2
Fig. 887. Finished . . . . .	Per dozen.	\$24.00	36.00	42.00
“ 887. Nickel Plated . . . . .	“	28.00	40.00	46.00

BATH SLIDES.

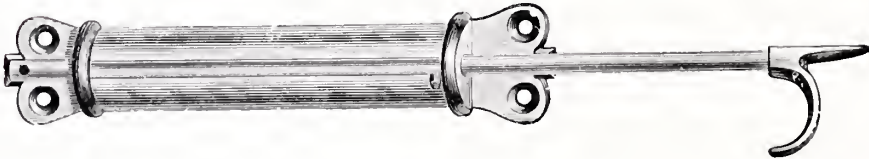


Fig. 888.

Fig. 888. Finished . . . . .	Per dozen.	\$12.00
“ 888. Nickel Plated . . . . .	“	13.50

# STAR PLUGS WITH RUBBER STOPPERS.

BASIN PLUG.  
COMMON OVERFLOW.

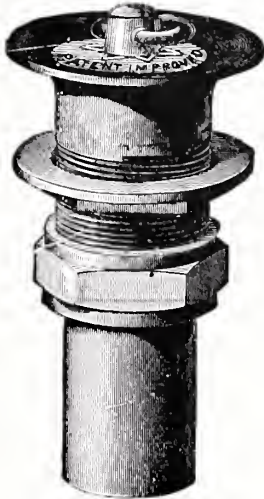


Fig. 889.

SIZE . . . . .	IN.	1	1½
Fig. 889. Brass . . . . .	Doz.	\$4.50	7.50
" 889. N. Plated . . . . .		5.50	9.00

SOAPSTONE TRAY PLUG.

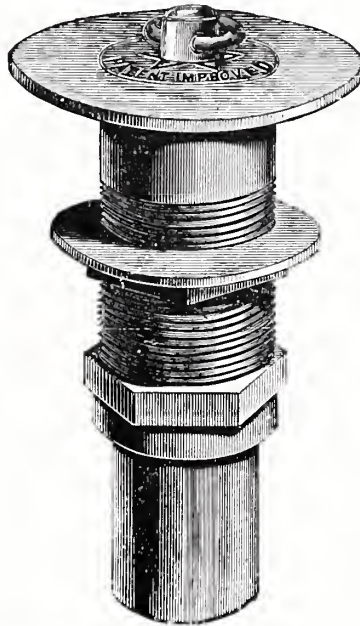


Fig. 890.

SIZE . . . . .	IN.	1	1½	1½	2
Fig. 890. Brass . . . . .	Per doz.	\$8.00	9.00	13.50	20.00
" 890. Nickel Plated . . . . .		9.00	10.50	15.00	22.50

BASIN PLUG.  
PATENT OVERFLOW.

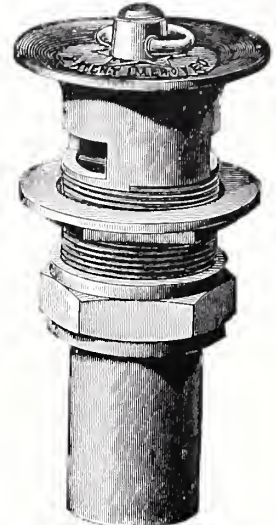


Fig. 891.

SIZE . . . . .	IN.	1	1½
Fig. 891. Brass . . . . .	Doz.	\$5.00	9.00
" 891. N. Plated . . . . .		6.00	10.50

RUBBER STOPPER.  
WITH NICKEL PLATED  
RING.



Fig. 892.

SINK OR BATH PLUG.



Fig. 893.

SIZE . . . . .	INCHES.	¾	1	1½	1½	2
Fig. 892. . . . .	Per dozen.	\$1.00	1.00	1.00	1.25	1.75
Fig. 893. Brass . . . . .	Per dozen.	\$2.00	2.25	3.50	5.00	
" 893. Nickel Plated . . . . .		2.50	2.75	4.00	6.00	
" 894. Brass . . . . .		2.50	3.25	4.00	6.00	
" 894. Nickel Plated . . . . .		3.50	4.25	5.00	7.50	

WASH TRAY PLUG.



Fig. 894.

SIZE . . . . .	INCHES.	1	1½	1½	2
Fig. 893. Brass . . . . .	Per dozen.	\$2.00	2.25	3.50	5.00
" 893. Nickel Plated . . . . .		2.50	2.75	4.00	6.00
" 894. Brass . . . . .		2.50	3.25	4.00	6.00
" 894. Nickel Plated . . . . .		3.50	4.25	5.00	7.50

PLUGS.

SINK OR BATH PLUG.



Fig. 895.

WASH TRAY PLUG.

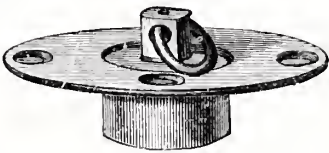


Fig. 896.

SIZE . . . . .	INCHES.	1	1½	1¾	2
Fig. 895. Finished . . . . .	Per dozen.	\$2.50	3.00	4.00	7.00
" 895. Nickel Plated . . . . .	"	3.00	3.50	4.50	8.00
" 896. Finished . . . . .	"	. .	6.00	7.00	10.00

SOAPSTONE SINK PLUG.

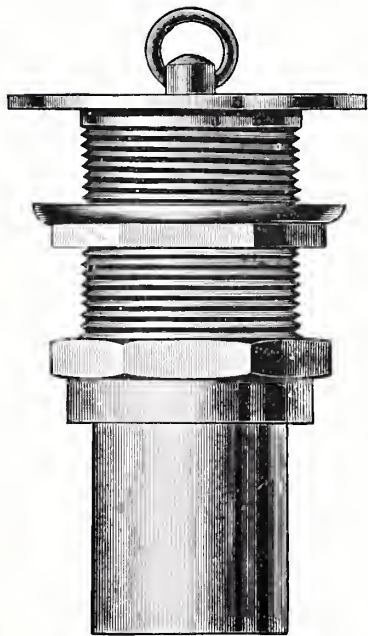


Fig. 897.

BRASS BASIN PLUGS.

COMMON OVERFLOW.

PATENT OVERFLOW.

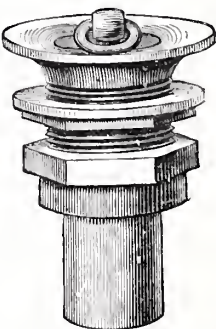


Fig. 898.

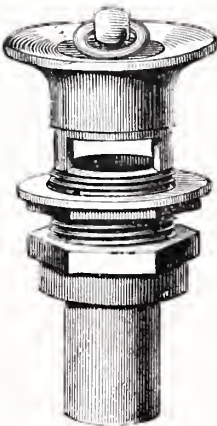


Fig. 899.

SIZE . . . . .	INCHES.	1½	1¾
Fig. 897. Finished . . . . .	Per dozen.	\$16.00	26.00
" 897. Nickel Plated . . . . .	"	19.00	29.00
Fig. 898. Finished . . . . .	Per dozen.	\$8.00	
" 898. Nickel Plated . . . . .	"	8.50	
" 899. Finished . . . . .	"	9.00	
" 899. Nickel Plated . . . . .	"	9.50	

MARBLE SLABS.

CORNER SLAB, WITH TWO BACKS.

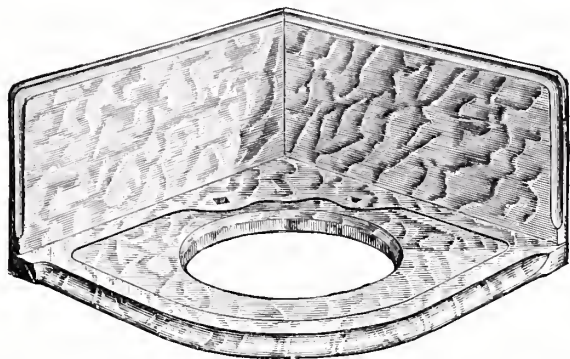


Fig. 900.

Letter.	Size, Inches.	Height of Back, Inches.	Contents.
A	19 x 19	8	5 Feet 4 Inches.
B	20 20	8	5 " 9 "
C	20 20	10	6 " 10 "
D	22 22	8	7 " "
E	22 22	10	7 " 6 "

SQUARE SLAB, WITH SINGLE BACK.

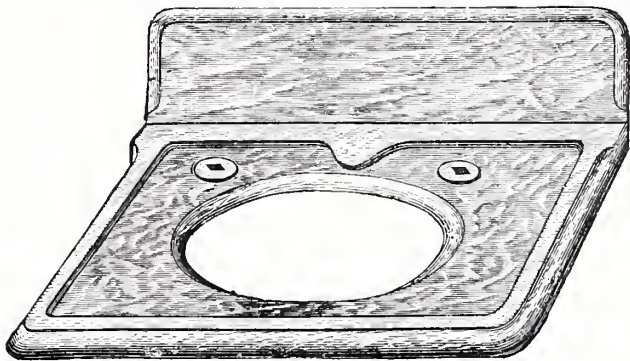


Fig. 901.

Letter.	Size, Inches.	Height of Back, Inches.	Contents.
F	18 x 24	8	5 Feet 1 Inches.
G	20 24	8	5 " 5 "
H	20 24	10	5 " 10 "
J	20 26	8	5 " 10 "
K	20 26	10	6 " 3 "
L	20 28	8	6 " 3 "
M	20 28	10	6 " 8 "
N	20 30	8	6 " 8 "
O	20 30	10	7 " 2 "
P	20 33	10	7 " 10 "

All Slabs are shipped with 8-inch Backs, and cut for 14-inch Basins, unless otherwise ordered.

Slabs for Oval Basins or Combination Cocks should be either 22 or 24 inches wide. Average weight of Marble Slabs, boxed, 12½ pounds per square foot. In calculating measurements, add one inch to each finished edge. Order by Letter only, not by size.



MARBLE SLABS.

SQUARE SLABS, WITH BACK AND RIGHT-HAND END.

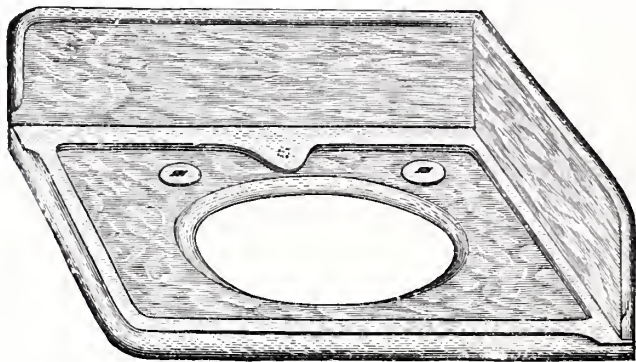


Fig. 902.

Letter.	Size, Inches.	Height of Back, Inches.	Contents.
Q	20 x 24	8	6 Feet 7 Inches.
R	20 26	8	7 " "
S	20 28	8	7 " 5 "
T	20 28	10	8 " 1 "
U	20 30	10	8 " 6 "

SQUARE SLABS, WITH BACK AND LEFT-HAND END.

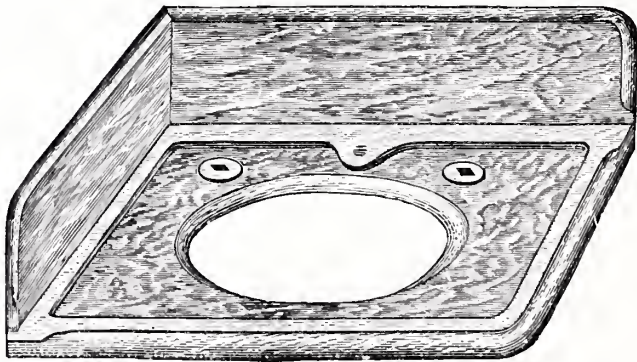


Fig. 903.

Letter.	Size, Inches.	Height of Back, Inches.	Contents.
V	20 x 24	8	6 Feet 7 Inches.
W	20 26	8	7 " "
X	20 28	8	7 " 5 "
Y	20 28	10	8 " 1 "
Z	20 30	10	8 " 6 "

In calculating measurements, add one inch to each finished edge.  
Order by Letter only, not by size.

## RECESS MARBLE SLABS.

WITH BACK AND TWO ENDS.

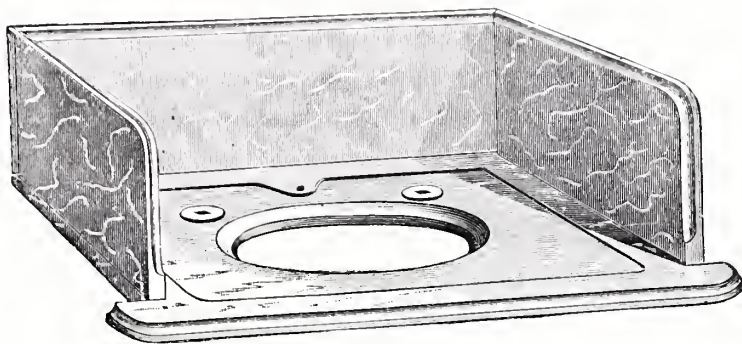


Fig. 904.

In ordering Recess Slabs great care should be exercised in giving the exact width and depth of Recess.

## SQUARE SLABS.

WITH BACK AND ONE END, ALSO WITH APRON IN FRONT AND END.

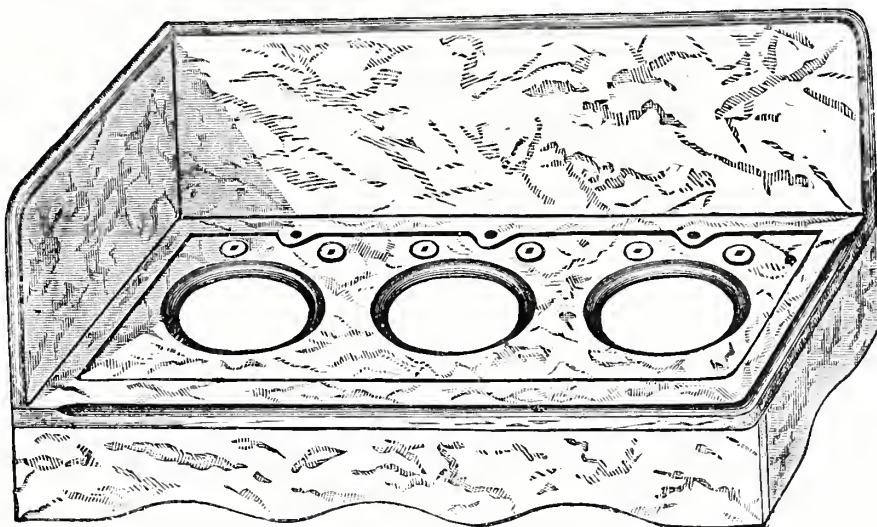


Fig. 905.

The above cut represents a Slab with holes for three Basins, and with Apron on front and end. These Slabs can be made for any number of Basins, with Back and End, either right or left-hand, and Front Apron to suit; or can be made with Back only, and Apron on both ends as well as in front.

When more than four Basins are wanted the Slab will be made of two or more pieces of Marble.

OPEN LAVATORIES.

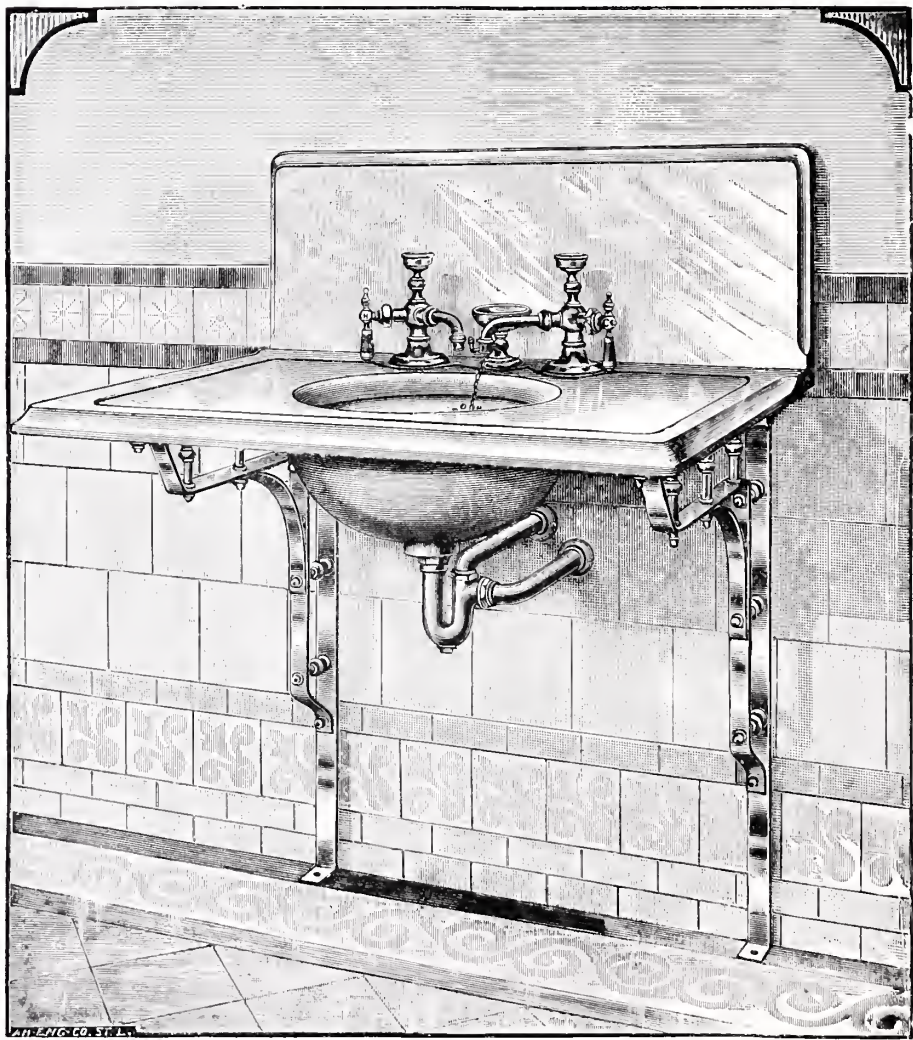
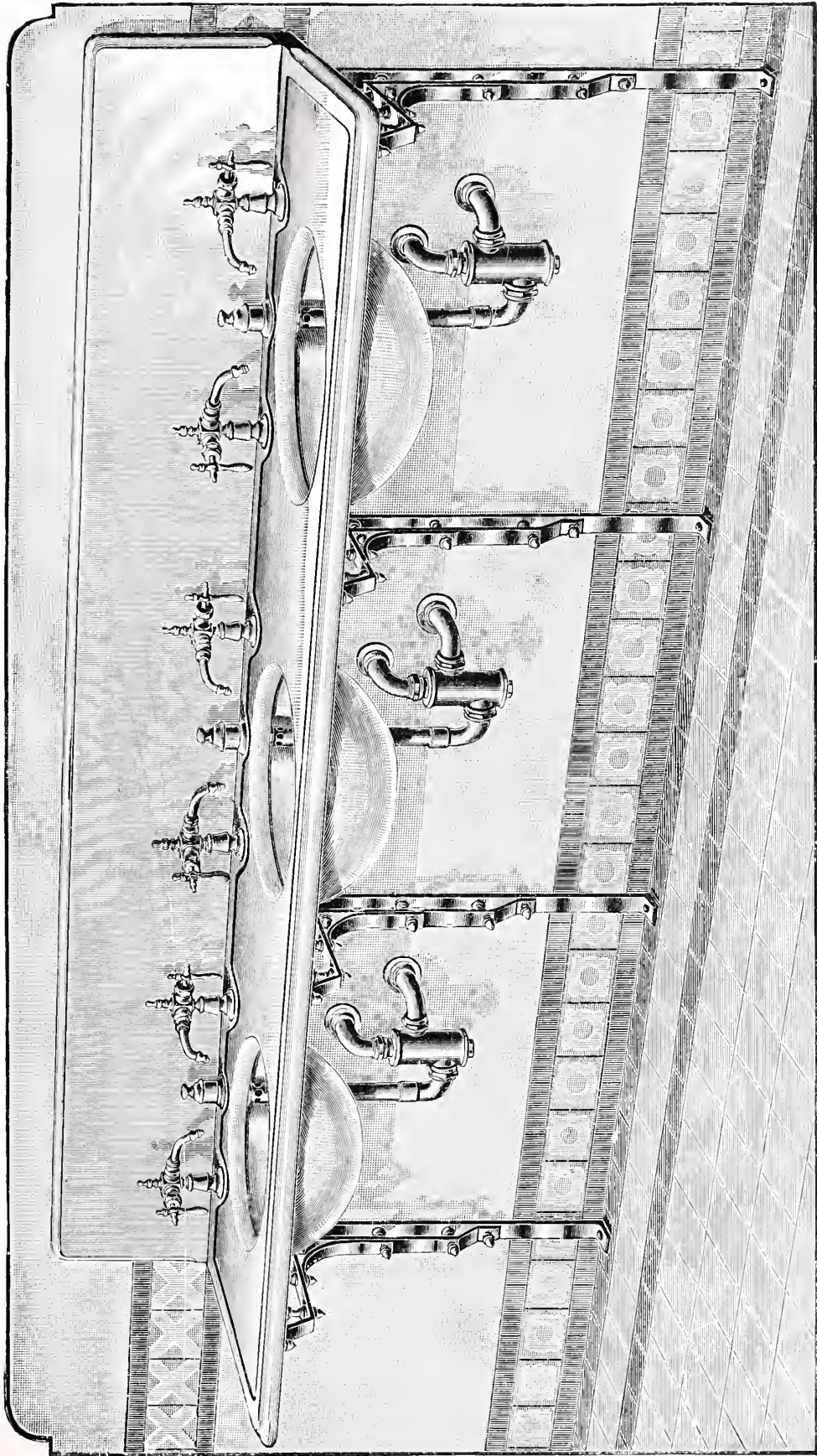


Fig. 906.

Open Lavatory comprises a 33 x 22 x 1 1/4 inch Italian, Pink or Dark Tennessee Marble Slab, with 12 x 1/4 inch Back ; 14-inch Patent Overflow Basin with Metal Plug ; No. 4 Nickel Plated Fuller Basin Cocks with Ring Cups ; No. 8 Nickel Plated Soap Cup and Chain Stay combined ; Nickel Plated Chain and Stopper ; 1 1/4-inch Nickel Plated Brass Basin Trap, with Wall Waste and Vent Connections complete, and Nickel Plated Brass Lavatory Brackets.

Price . . . . . \$50.00  
Add, if with Ebony or Ivory Basin Cock Handles. . . . . 8.00





OPEN LAVATORY — Fig. 907.

Comprises a 90 x 22 x 1 1/2 inch Italian, Pink or Dark Tennessee Marble Slab, in one piece, with 12 x 3/4 inch Back, fitted with three 15 x 19 inch Oval Recess Basins, with 10 inch space between basins and 6 inch space between the outer basins and the ends of the Marble Slab; "Oxford" Basin Wastes and Overflows; No. 2 "Fuller" Basin Cocks; No. 8 "Clean Sweep" Brass Basin Traps, with Waste and Vent Connections extending to the wall, and Brass Lavatory Brackets. All Trimmings Nickel Plated. Price, . . . . . \$145.00  
If with Marble Slab, 60 x 22 x 1 1/2 inch and 14-inch Round Basins, instead of the Recess Basins and Fixtures, deduct . . . . . 38.00



# OPEN LAVATORIES.

“THE PRIMROSE.”

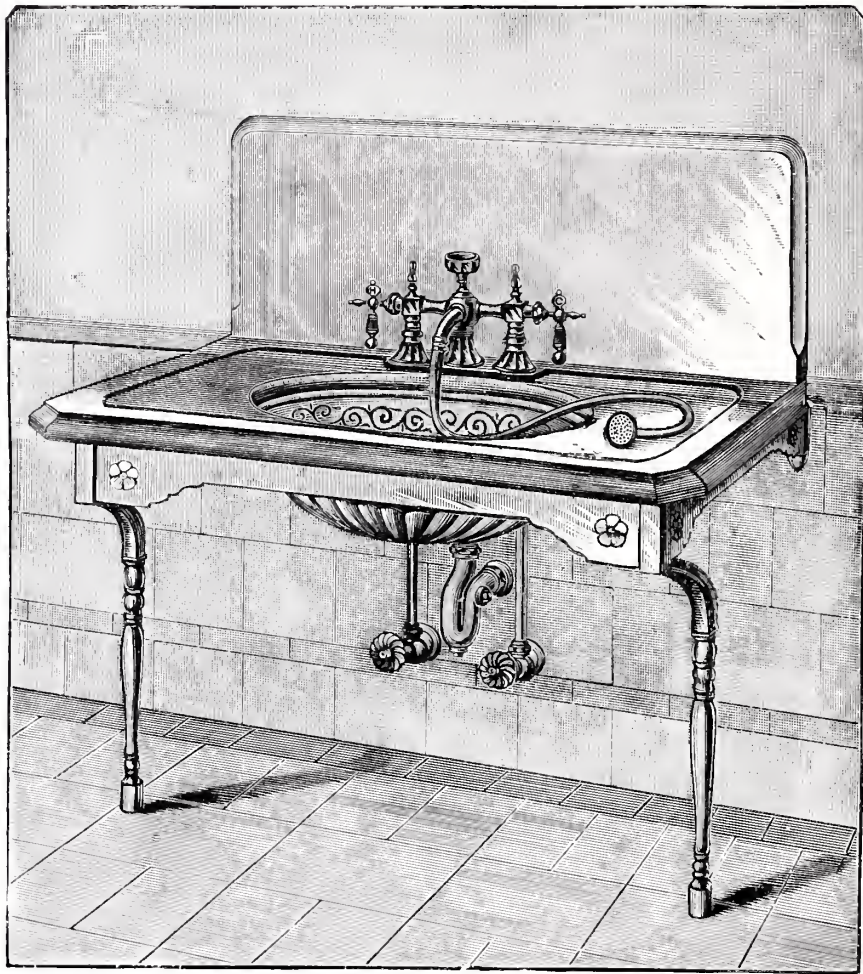


Fig. 908.

The above cut shows an Octagon “Primrose” Combination Basin Waste, a “Primrose” Basin, a “Primrose” Trap, and “Primrose” Angle Valves, fitted complete to a Slab with Ornamented Open Apron supported on Adjustable Bent Brass Legs, and with a Rubber Tube and Sprinkler put on the Nozzle.

Price, complete, with Basin, decorated inside and outside, Italian Marble Slab, 23 x 36 inches, Back 15 inches high, and Marble Apron . . . . .	\$75.00
For Tennessee Marble, add . . . . .	5.00
For Nickel Plated Apron, add . . . . .	4.00

# OPEN LAVATORIES.

"THE PRIMROSE."

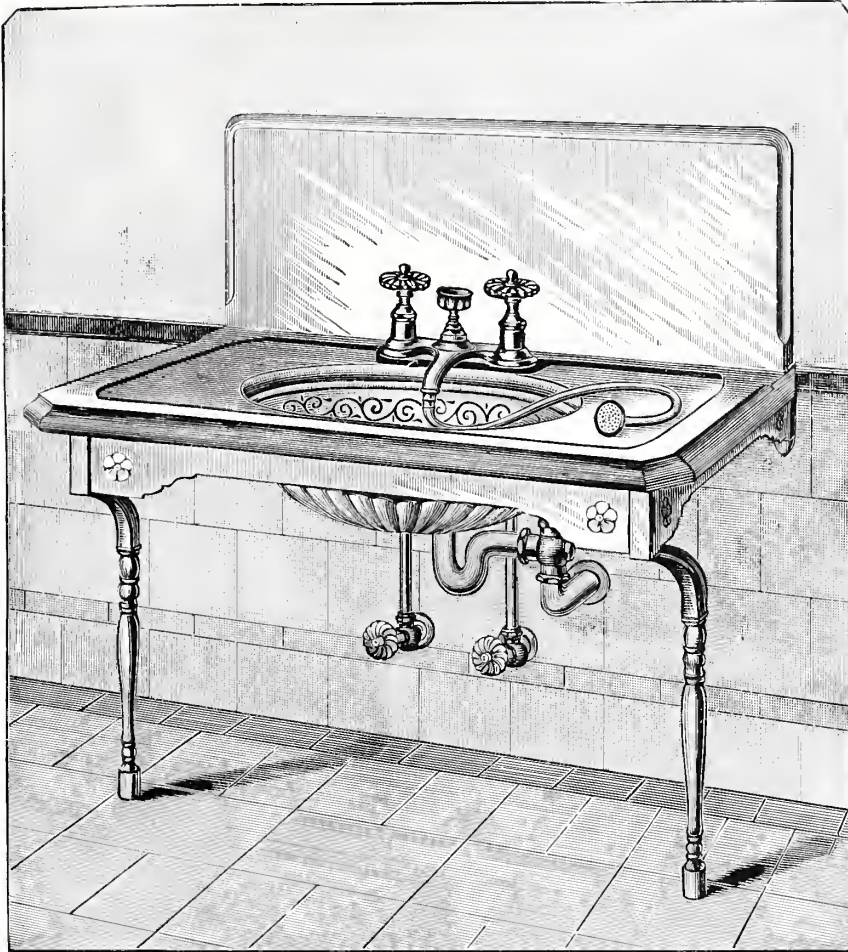


Fig. 909.

The above cut shows a Low Down "Primrose" Combination Set complete, on a Slab with Ornamented Open Apron, supported on Bent Legs; a decorated embossed "Primrose" Basin, "Primrose" Angle Valves, and a "Puritan" Brass Trap. The Rubber Tube and Sprinkler, shown hereon, have a threaded attachment on the end, that can easily be connected to or removed from the Nozzle at pleasure.

Price, complete, with Basin, decorated inside and outside, Italian Marble Slab, 23x36 inches,

Back, 15 inches high, and Marble Apron, . . . . .	\$72.00
For Tennessee Marble, add, . . . . .	5.00
For Nickel Plated Apron, add, . . . . .	4.00



# OPEN LAVATORIES.

DOUBLE "PRIMROSE" LAVATORY APPARATUS, WITH No. 4 "PRIMROSE" COMBINATION.

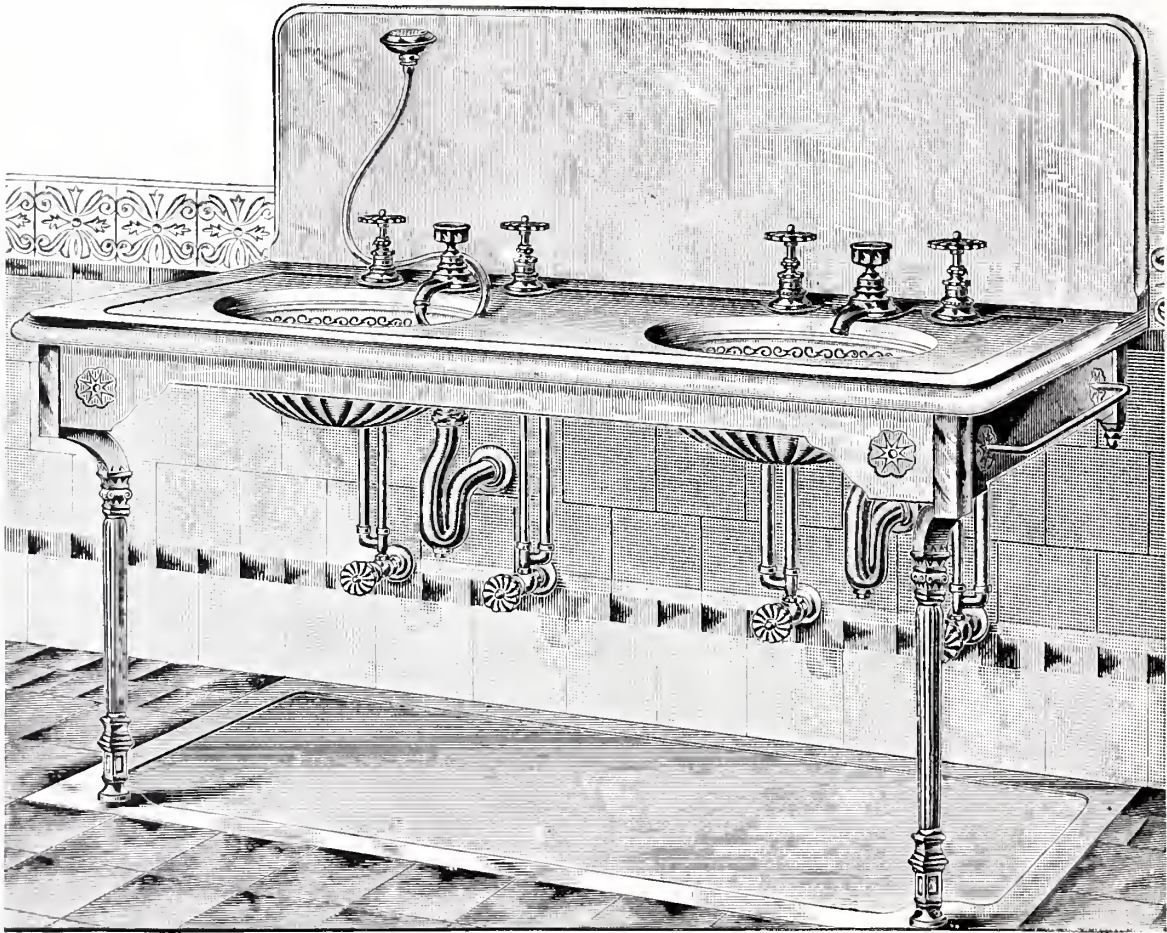


Fig. 910.

The Slab and open Apron are supported by a strip of galvanized wrought iron,  $1\frac{1}{2} \times \frac{3}{4}$  inches thick, which extends behind the open Apron and is secured to each of the legs. The open Apron is furnished either with rosettes cut in the marble as shown, or not. We furnish this Fixture, complete, with either pattern "Primrose" Combination. The Valves in the Basin Cocks can be taken out to repair by unscrewing the caps shown directly under the handles.

Price, complete, including Italian Marble Slab, 66 x 24 inches, Back 15 inches high, Floor Slab, Nickel Plated Brass Traps, Angle Valves, Bent Basin Legs, Towel Rack and all top Fixtures and 15 x 19 Basins decorated in and outside . . . . . \$210.00

# SALOON FIXTURE.

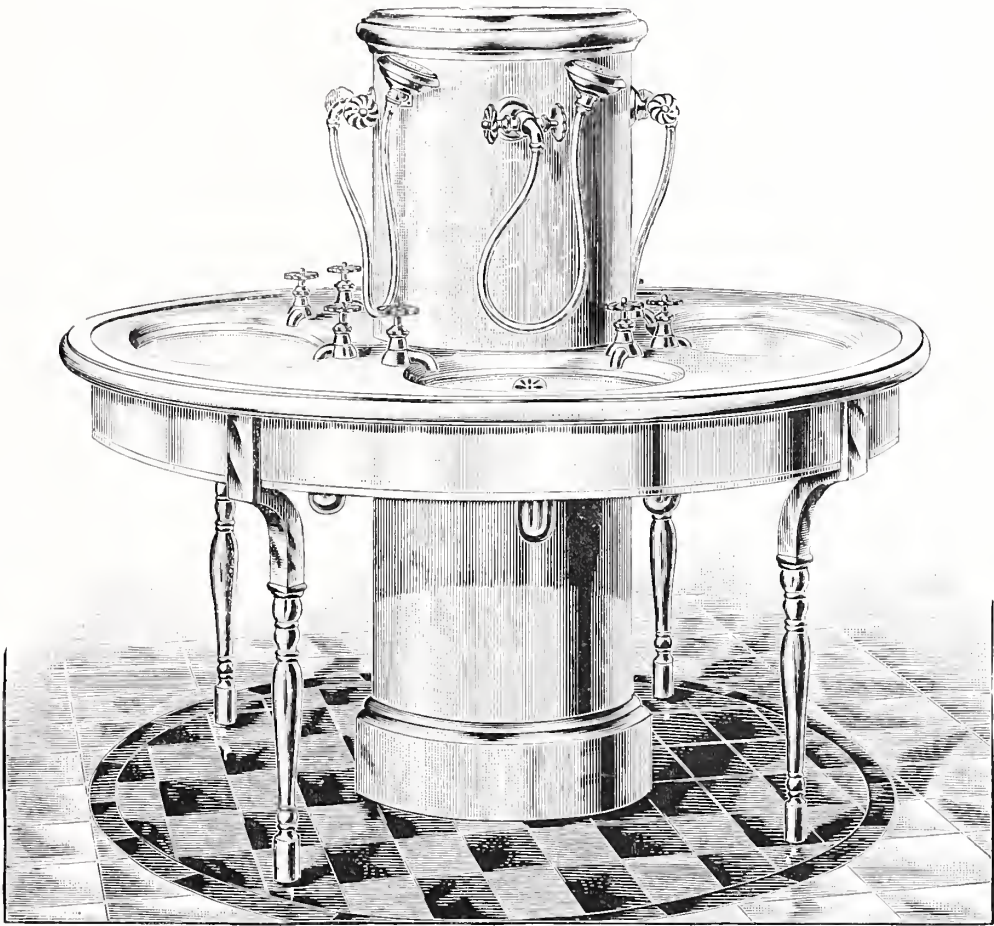


Fig. 911.

Price, including 15 x 19 inch "Puritan" Basins, Nickel Plated Brass Traps, bent Basin Legs, Nickel Plated "Primrose" Low Down Basin Cocks and Shampoo Fixtures, and 1½-inch Italian Marble Slab, 5 feet diameter, Marble Apron and Marble Column . . . . . 3400.00



C. H. MOORE'S PATENT.

## RECESS SANITARY WASH BASINS.

THE "PLYMOUTH."

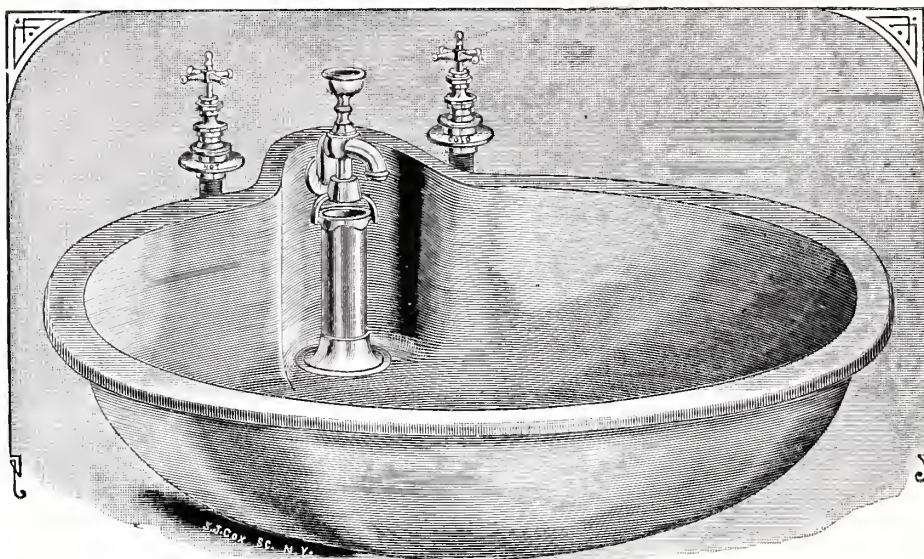


Fig. 912.

This Basin has an aperture made through it just below the Rim, into which the Nozzle that projects into the Basin is permanently secured by a locknut, B, at the back of the Basin, as shown in Fig. 914. The Hot and Cold Water Cocks are joined to this Nozzle, and their upper ends extend through the Slab, and are threaded on the outside as shown by Fig. 913.

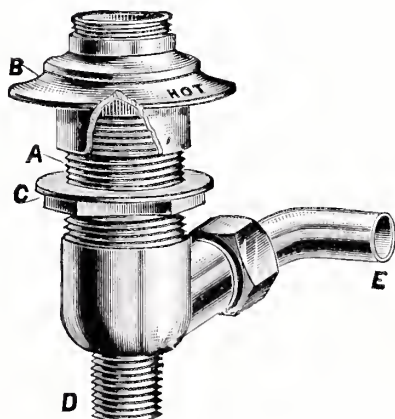


Fig. 913.

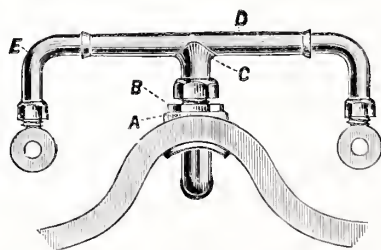


Fig. 914.

Fig. 913 shows the construction of the body of the "Plymouth" Basin Cocks. The Ferrule, B, unscrews to allow the upper ends of Cocks to enter the holes in Slab. After the Ferrule, B, is screwed on in position, then tighten the Locknut, C. The Plates, Hot and Cold, are held in position by a flange on the Ferrules, B.

Fig. 914 shows the manner of connecting to the Nozzle of "Plymouth" Basin. D is a Lead Pipe, left long enough and disconnected at each end so that the plumber can bend it to meet the couplings, E, after the Cocks are secured to the Slab. A, is a Boss, made on the back of the Recess. B, is a Locknut. For prices, see page 307.

C. H. MOORE'S PATENT.

# RECESS SANITARY WASH BASINS. CONTINUED.

THE "PLYMOUTH" EMBOSSED.

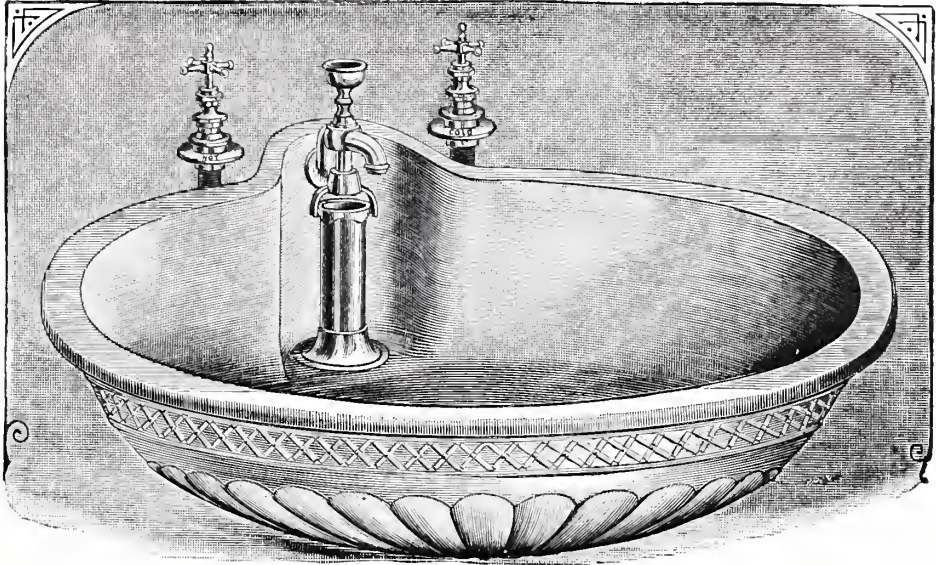


Fig. 915.

This Basin is intended to be fitted up without an Apron, or with an open Apron of Marble or Nickel Plated, Polished or Gilded Brass.

PLAN OF MARBLE SLAB AND CROSS SECTION OF "PLYMOUTH" BASIN.

Cock Holes, 10 inches apart.

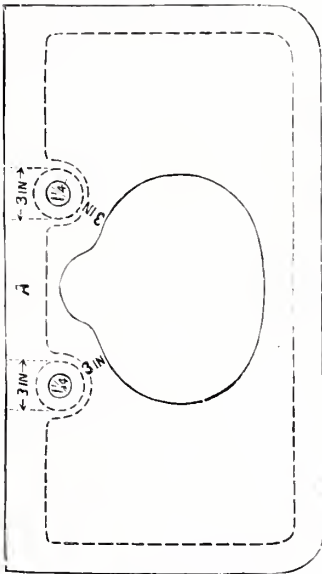


Fig. 916.

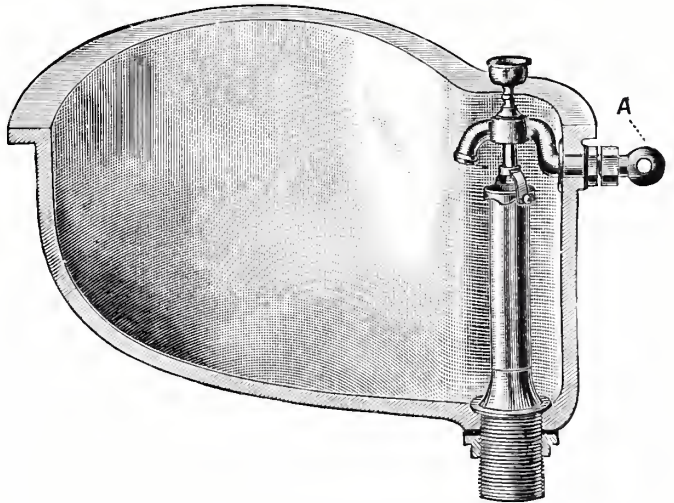


Fig. 917.

Price, complete, Marble or Ivory Tint . . . . .	14 x 17 Inches.	\$17.00	15 x 19 Inches.	\$18.00
" " Decorated inside only . . . . .	" "	23.00	" "	25.00
" " " outside only . . . . .	" "	21.00	" "	23.00
" " " inside and outside . . . . .	" "	28.00	" "	30.00
For Embos-ing, add . . . . .				1.50



C. H. MOORE'S PATENT.

RECESS SANITARY WASH BASINS.

CONTINUED.

THE "ORIENT" EMBOSSED.

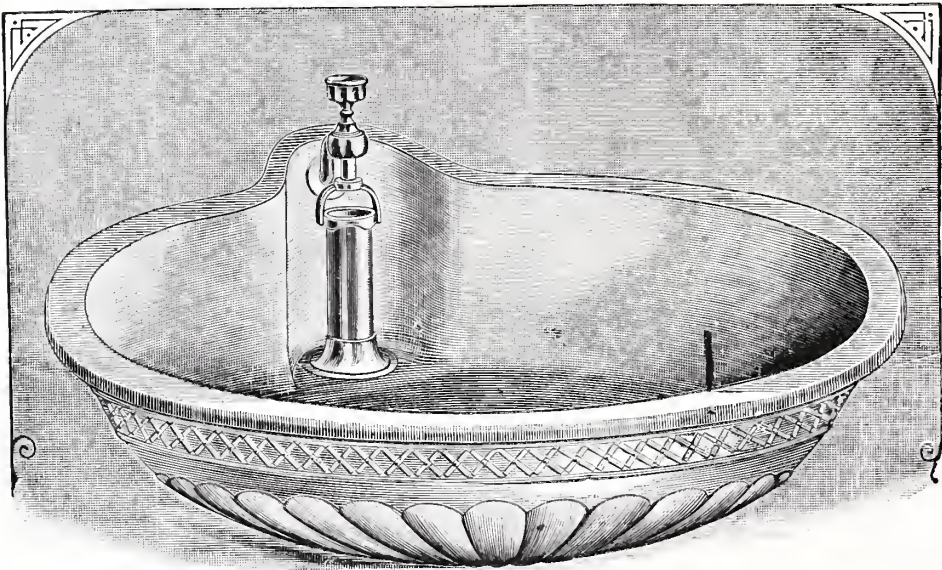


Fig. 918.

This Basin and Fixture is made to be used with separate Cocks. The Fixture is fitted in the Basin complete, as shown, so there is no adjustment of the parts required, and there is no occasion to have a hole cut in the marble to operate the Pull through, as the Slab is made the shape of the Recess, entirely exposing the operative parts.

To open the Waste Valve, lift the ring cup handle and turn it.

To remove the standing overflow, lift it up and away from the inwardly projecting lugs on the curved fitting to which it is suspended.

SIZE . . . . .	INCHES.	14 x 17	15 x 19
Price, Marbled or Ivory, Nickel Plated Fixture . . . . .		\$11.00	\$12.00
“ Decorated inside only . . . . .		17.00	18.00
“ “ outside only . . . . .		15.00	16.00
“ “ inside and outside . . . . .		22.00	23.00
For Embossed Basins, add . . . . .		1.00	1.00

C. H. MOORE'S PATENT.

# RECESS SANITARY WASH BASINS.

CONTINUED.

CROSS SECTION OF "ORIENT" BASIN.

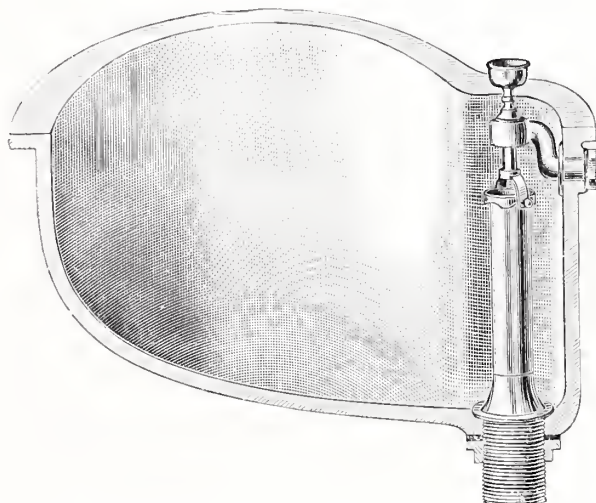


Fig. 919.

The Guide and Strainer in the outlet of this Basin is the same as in the "Plymouth" Basin, pages 306 and 307.

"ORIENT" BASIN AND SLAB.

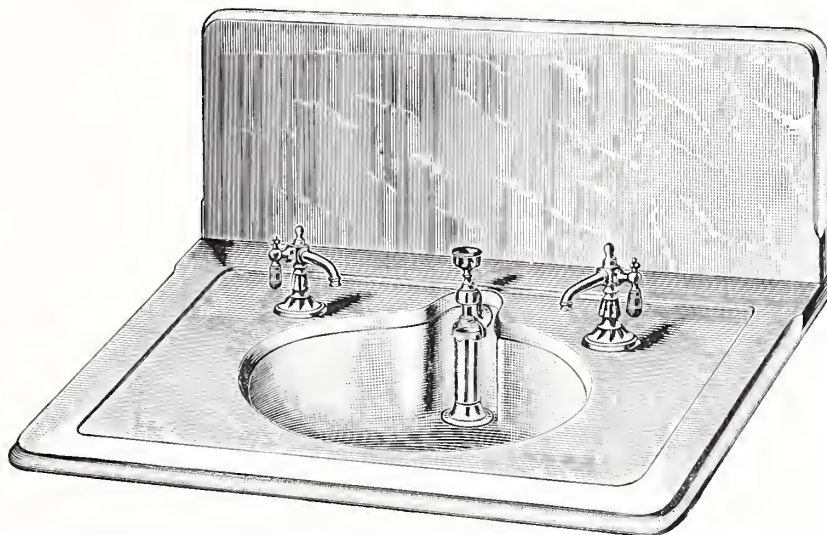


Fig. 920.

Price, 14-inch Italian Marble Slab, 33 x 22, Backs 15 inches high, Octagon Peck's Improved  
 Basin Cocks and 15 x 19 "Orient" Basin, Cocks and Basin Fixture Nickel Plated . . . . \$33.00  
 For Tennessee Marble Slab, add . . . . . 5.00  
 " Decorated Basin, add . . . . . 6.00



C. H. MOORE'S PATENT.

SANITARY WASH BASINS.

"THE STAR."



Fig. 921.

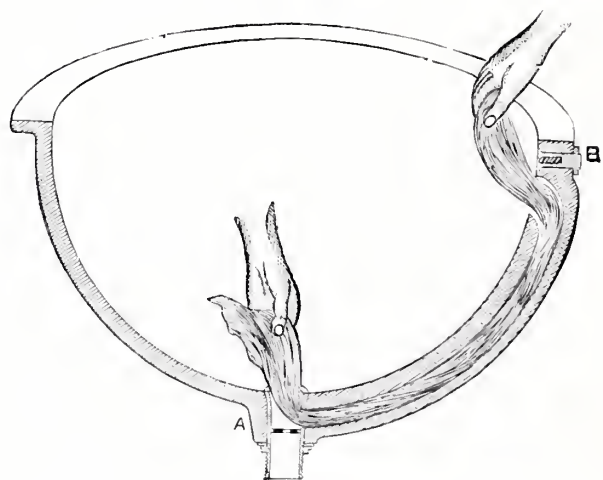


Fig. 922.

These Basins have the same sanitary elements as the "Puritan" Basins, and differ from the "Puritan" only in shape, the "Star" having a Centre Outlet instead of a Straight-back, and as a consequence, are a cheaper Basin, costing only a trifle more than the common overflow basins with the necessary extra materials, etc., added.

Price of "Star" Basins, with all the Fittings furnished, and put in complete :

14-inch, Marbled or Ivory Tint . . . . .	\$2 85	Decorated.	\$7 00
15-inch, " " " . . . . .	3 25	"	7 50
16-inch, " " " . . . . .	3 75	"	8 25
14x17 inches, Oval, Marbled or Ivory Tint . . . . .	4 50	"	9 00
15x19 inches, " " " . . . . .	5 25	"	10 00
16x21 inches, " " " . . . . .	6 00	"	11 00

For Embossed Basins, add \$1.00. If Shield Strainer is wanted, add to List \$1.00.

C. H. MOORE'S PATENT.

# SANITARY WASH BASINS.

CONTINUED.

EMBOSSSED OVAL "STAR" BASIN, SHIELD STRAINER.



Fig. 923.

PLAIN OVAL "STAR" BASIN, PERFORATED STRAINER.

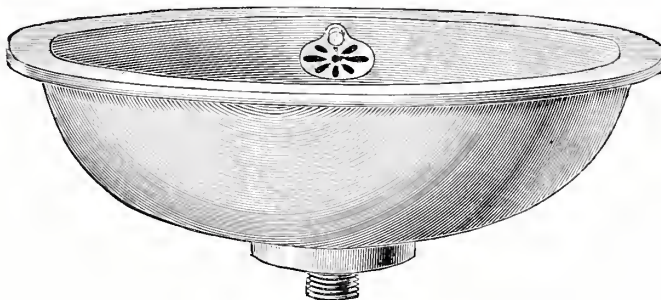


Fig. 924.

Embossed "Star" Basins, Marbled, Ivory or Decorated, in 14 x 17 and 15 x 19, Oval sizes. Plain "Star" Basin, Marbled, Ivory or Decorated, in all sizes, round or oval.

The "Star" is the cheapest Sanitary Wash Basin made, and as a sanitary basin it cannot be excelled, as the strainer that covers the overflow inlet can be removed at pleasure, by unscrewing the chain stay, affording an opportunity to clean the overflow channel by pushing a cloth through it, and in addition to this, they are made heavy and of the best ware, rendering them less liable to breakage—a feature of itself more than sufficient to offset the trifling extra cost over a common basin.

In specifying, state if Perforated or Shield Strainer is wanted.

The Shield Strainer that covers the overflow hole is handsomely embossed, and projects out at the lower portion sufficient to allow overflowing water to escape under it, and while adding beauty to the Basin, it hides the interior of the overflow channel and to a great extent prevents it from getting dirty, as any suds thrown against the shield fall again into the Basin.

For prices, see page 310.

C. H. MOORE'S PATENT.

# SANITARY WASH BASINS.

CONTINUED.

"THE PURITAN."

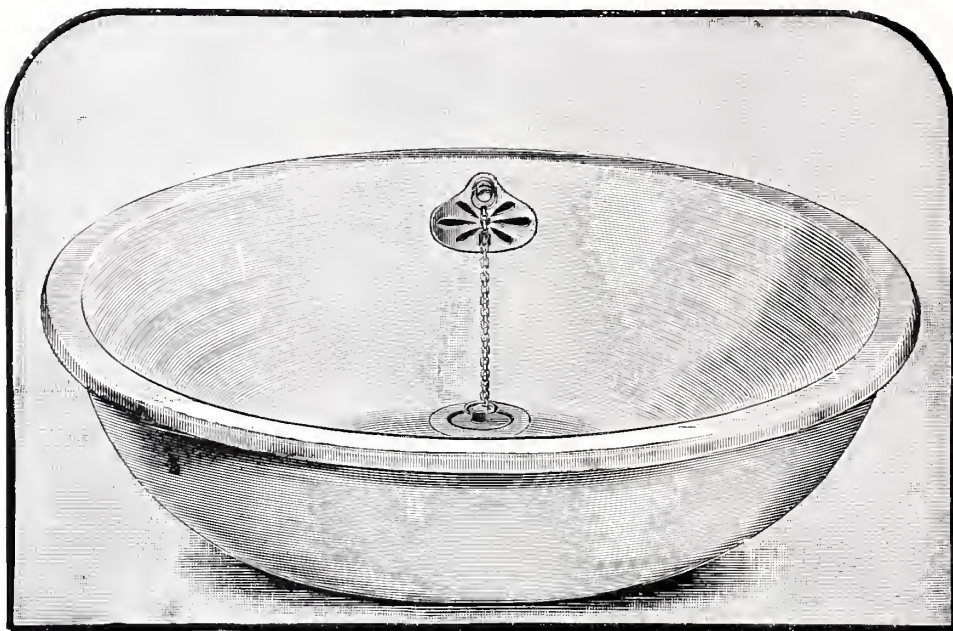


Fig. 925.

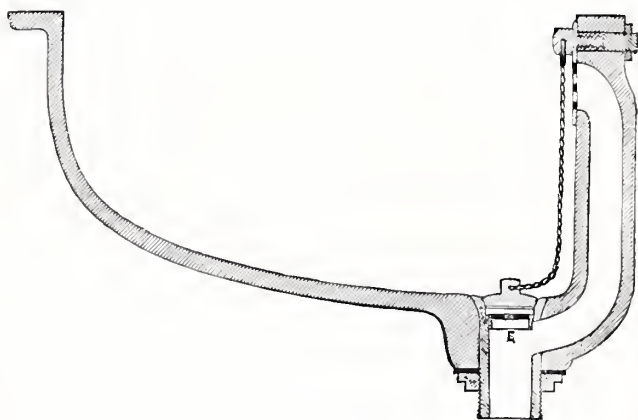


Fig. 926.

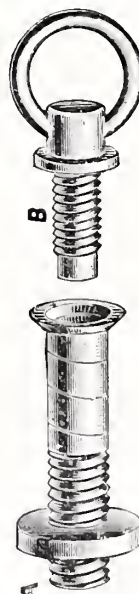


Fig. 927.

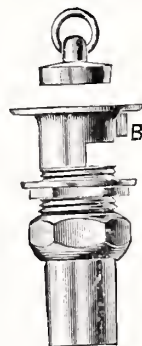


Fig. 928.

The sanitary features of this Basin are the same as "Star" Basin, on pages 310 and 311.  
For Prices, see page 313.







OPEN LAVATORIES.

No. 1.

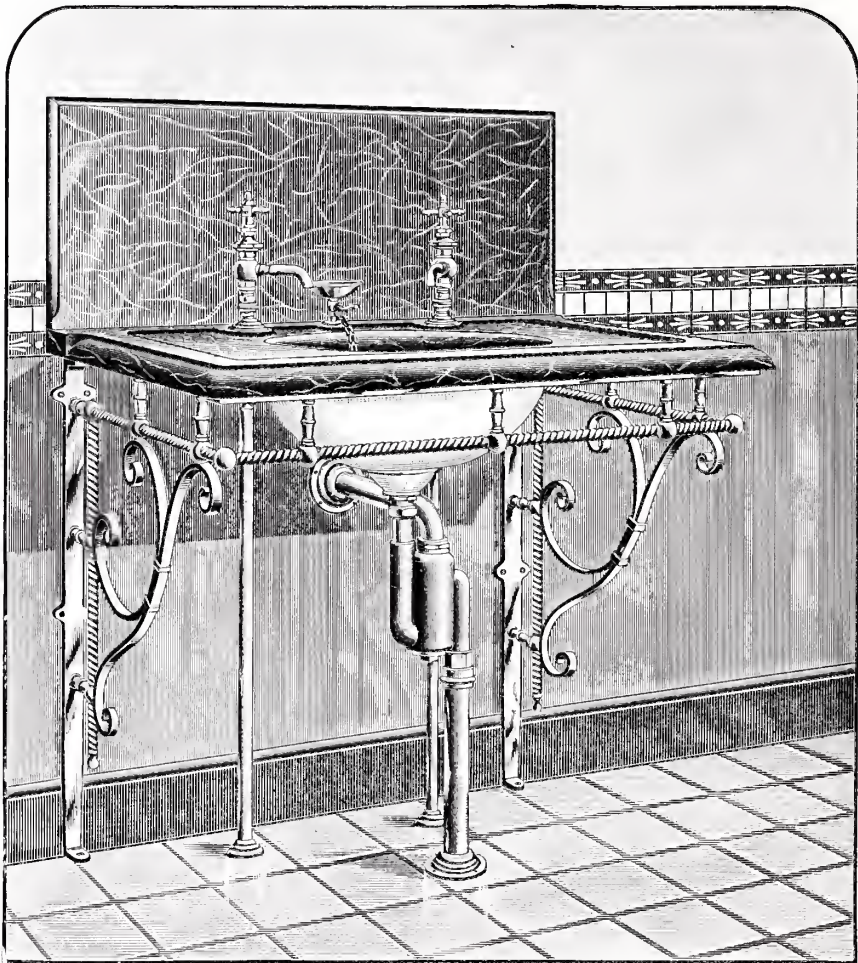


Fig. 932.

Shows 14-inch Tennessee Marble Slab, 33 x 21 inch, with 12-inch Back, 14 x 17 inch Decorated Patent Overflow Basin, No. 27 Nickel Plated Bracket and Apron, Nickel Plated "Clean Sweep" Trap with Back Air Vent, No. 9 Nickel Plated Compression Basin Cocks, No. 8 Nickel Plated Chain Stay and Chain and Nickel Plated Supply Pipes to Floor.

Price . . . . . \$60.00

## OPEN LAVATORIES.

No. 2.

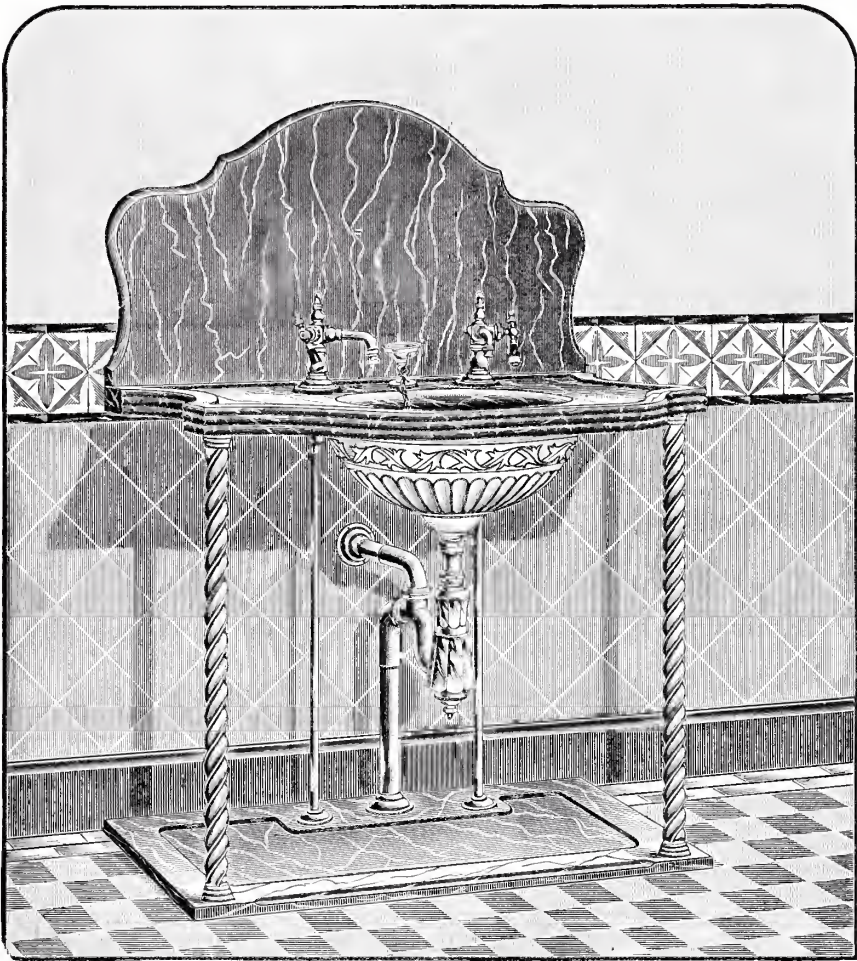


Fig. 933.

Shows 14-inch Grey Knoxville Fancy Marble Slab, with 18-inch Back, 14 x 17 Decorated and Embossed Patent Overflow Basin, No. 6 Spiral Nickel Plated Legs, Nickel Plated Oxford Trap with Back Air Vent, No. 4 Nickel Plated Peck's Improved Basin Cocks, Ebony Handles, Nickel Plated Supply Pipes to Floor, No. 8 Nickel Plated Chain Stay and Chain.

Price . . . . . \$70.00

Marble Floor Slab, extra . . . . . 10.00

OPEN LAVATORIES.

No. 3.

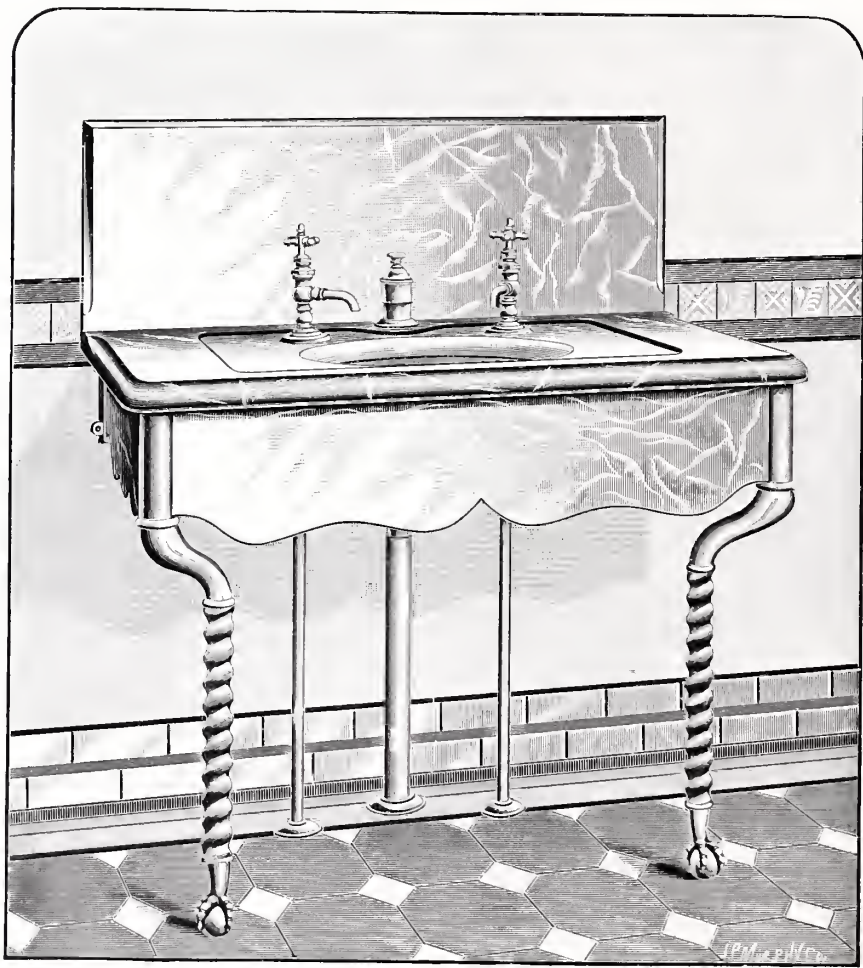


Fig. 934.

Shows 14-inch Italian Marble Slab, 36 x 22 inches, 15-inch Back, 5-inch Fancy Aprons, No. 8 Nickel Plated Offset Legs and Apron Brackets, 14 x 17 Decorated Basin with Oxford Waste and Overflow, No. 7½ Nickel Plated Compression Basin Cocks, Nickel Plated Supply Pipes and Waste to Floor.

Price . . . . . \$60.00



## OPEN LAVATORIES.

No. 4.

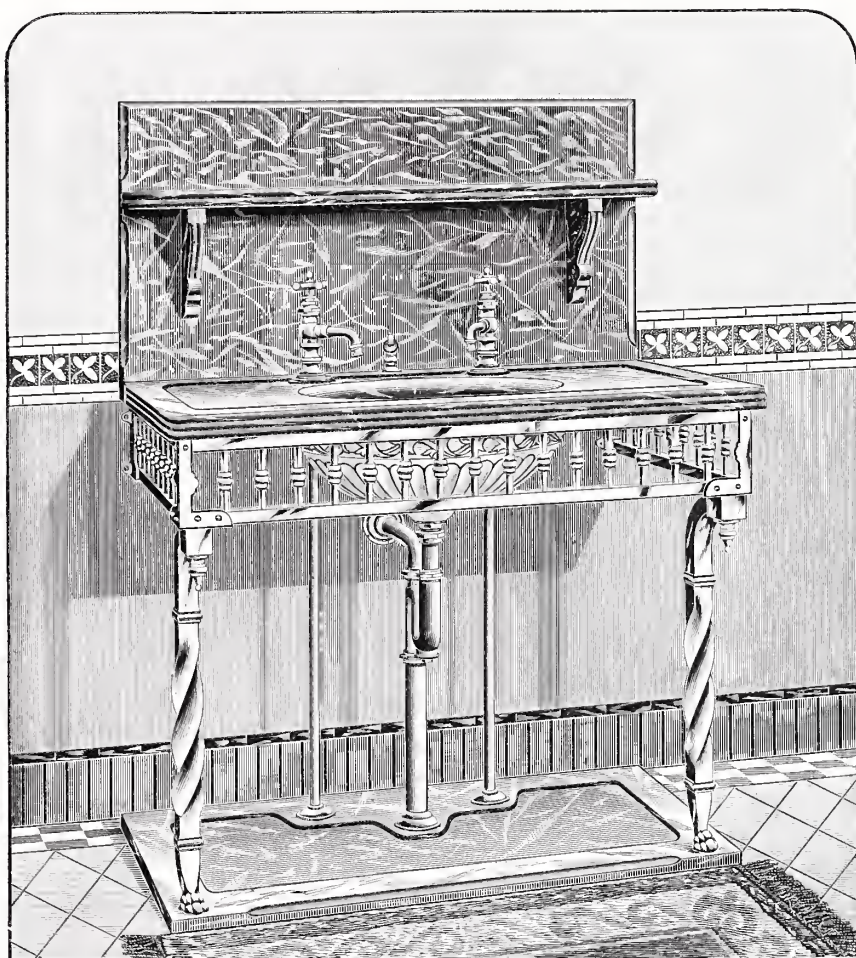


Fig. 935.

Shows 14-inch Light Tennessee Marble Slab, with 18-inch Back and Shelf supported by Brackets, 15 x 19 inch Decorated and Embossed Patent Overflow Basin, No. 30 Nickel Plated Legs and Aprons, No. 9 Nickel Plated Compression Basin Cocks, No. 4 Nickel Plated Chain Stay and Chain, Nickel Plated Full S Trap with Back Air Vent, Nickel Plated Supply Pipes to Floor.

Price . . . . .	\$100.00
Floor Slab, extra . . . . .	12.00



SOLID BRASS LAVATORY LEGS.

LISTED BY THE SINGLE DOZEN.

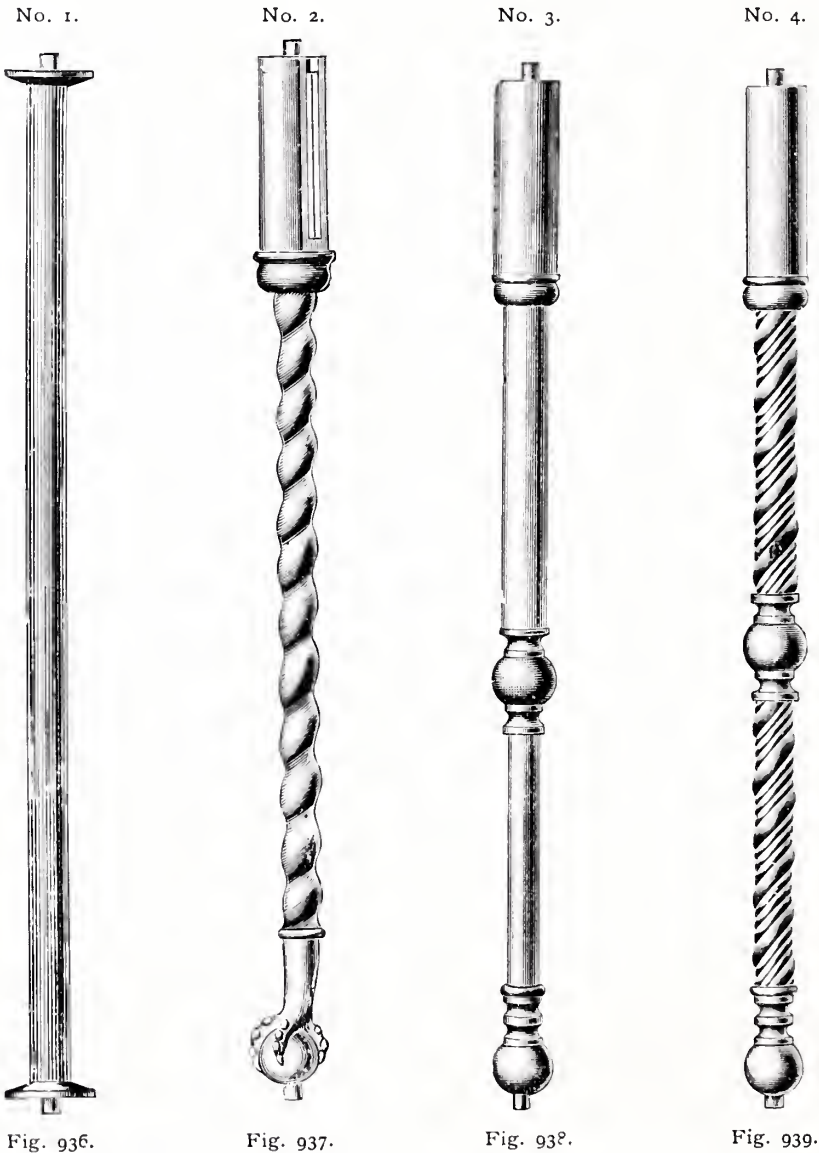


Fig. 936.	Polished Brass . . . . .	Per dozen.	\$20.50
" 936.	Nickel Plated . . . . .	"	24.50
" 937.	Polished Brass . . . . .	"	40.50
" 937.	Nickel Plated . . . . .	"	45.00
" 938.	Polished Brass . . . . .	"	35.50
" 938.	Nickel Plated . . . . .	"	40.50
" 939.	Polished Brass . . . . .	"	44.00
" 939.	Nickel Plated . . . . .	"	49.00

# SOLID BRASS RECEDING LAVATORY LEGS.

FOR 5-INCH MARBLE APRON, 7-8 INCH THICK.

LISTED BY THE SINGLE DOZEN.

No. 5.



Fig. 940.

No. 6.

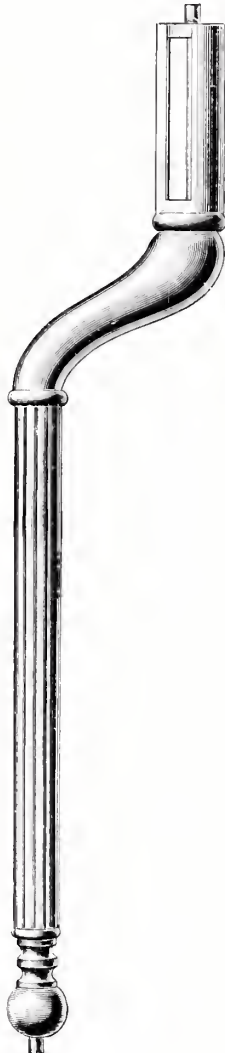


Fig. 941.

No. 7.



Fig. 942.

Fig. 940.	Polished Brass . . . . .	Per dozen.	\$48 00
" 940.	Nickel Plated . . . . .	"	53 00
" 941.	Polished Brass . . . . .	"	46 50
" 941.	Nickel Plated . . . . .	"	51 00
" 942.	Polished Brass . . . . .	"	50 00
" 942.	Nickel Plated . . . . .	"	55 00

These Legs recede equi-distance from ends as from front of Lavatory.

# SOLID BRASS RECEDING LAVATORY LEGS.

LISTED BY THE SINGLE DOZEN.

No. 8.

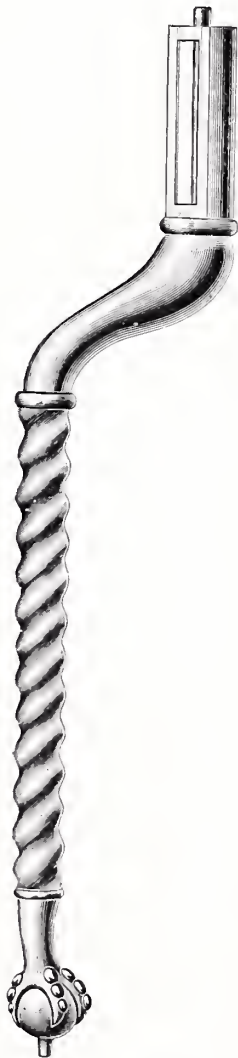


Fig. 943.

No. 9.

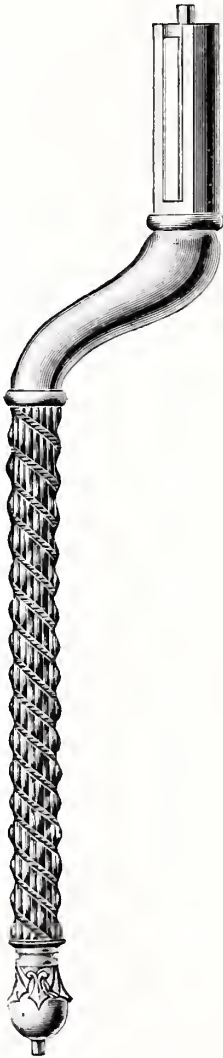


Fig. 944.

No. 10.

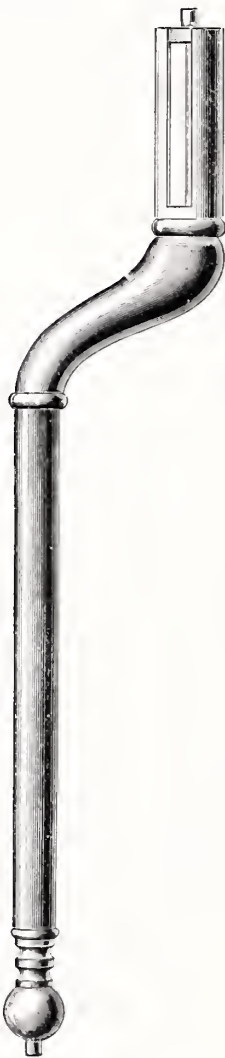


Fig. 945.

Fig. 943.	Polished Brass . . . . .	Per dozen.	\$54.00
" 943.	Nickel Plated . . . . .	"	58.00
" 944.	Polished Brass . . . . .	"	54.00
" 944.	Nickel Plated . . . . .	"	58.00
" 945.	Polished Brass . . . . .	"	45.00
" 945.	Nickel Plated . . . . .	"	50.00

These Legs recede equi-distance from ends as from front of Lavatory.

# KEY TO CHANGES ON LAVATORY LEGS.

CAST SQUARE  
APRON TOP.



Fig. 946.

CAST ROUND  
APRON TOP.



Fig. 947.

CLAW FOOT.



Fig. 948.

GLOBE CASTING.

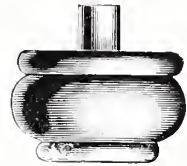


Fig. 949.

HEAVY DOUBLE PLATE  
CASTING.

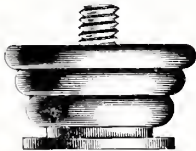


Fig. 950.

SINGLE PLATE  
CASTING.



Fig. 951.

PLAIN TURNED  
FOOT.



Fig. 952.

EMBOSSED  
ROUND FOOT.



Fig. 953.

Fig. 946.	Casting at Top of Leg . . . . .	Add to List, per dozen.	\$2.25
" 947.	" " " . . . . .	" " "	2.25
" 948.	" Foot of Leg . . . . .	" " "	5.25
" 949.	" Top " . . . . .	Deduct from List, per dozen.	2.50
" 949.	" Foot " . . . . .	" " "	2.00
" 949.	" Top and Foot of Leg . . . . .	" " "	4.50
" 950.	" Top of Leg . . . . .	" " "	2.50
" 950.	" Foot " . . . . .	" " "	2.00
" 950.	" Top and Foot of Leg . . . . .	" " "	4.50
" 951.	" Top of Leg . . . . .	" " "	3.00
" 951.	" Foot " . . . . .	" " "	2.00
" 951.	" Top and Foot of Leg . . . . .	" " "	5.00
Figs. 952 and 953. For Legs Listed with Square Base . . . . .			Add to List, per dozen. 4.00



SOLID BRASS BRACKETS.

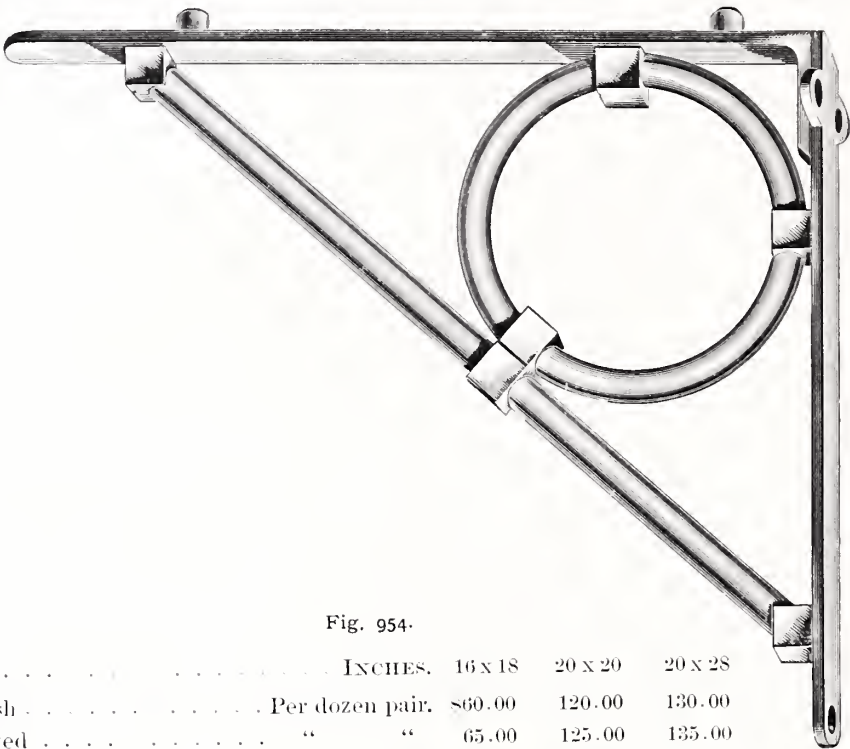


Fig. 954.

SIZE . . . . .	INCHES.	16 x 18	20 x 20	20 x 28
Fig. 954. Brass Finish . . . . .	Per dozen pair.	\$60.00	120.00	130.00
“ 954. Nickel Plated . . . . .	“ “	65.00	125.00	135.00

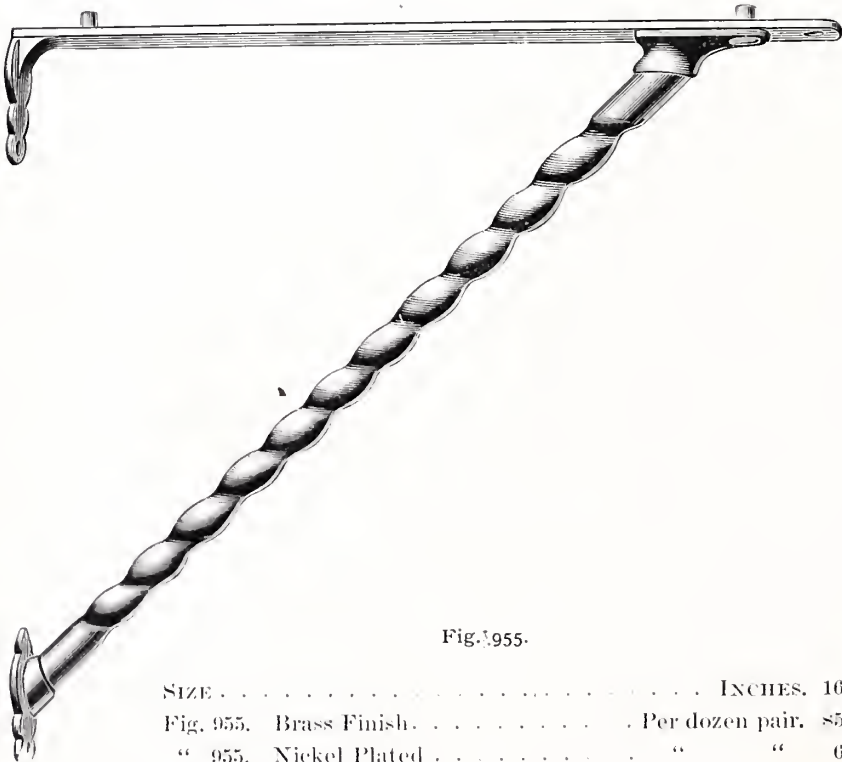


Fig. 955.

SIZE . . . . .	INCHES.	16 x 18	20 x 20	20 x 28
Fig. 955. Brass Finish . . . . .	Per dozen pair.	\$57.00	65.00	71.00
“ 955. Nickel Plated . . . . .	“ “	60.00	68.00	75.00

SOLID BRASS BRACKETS — CONTINUED.

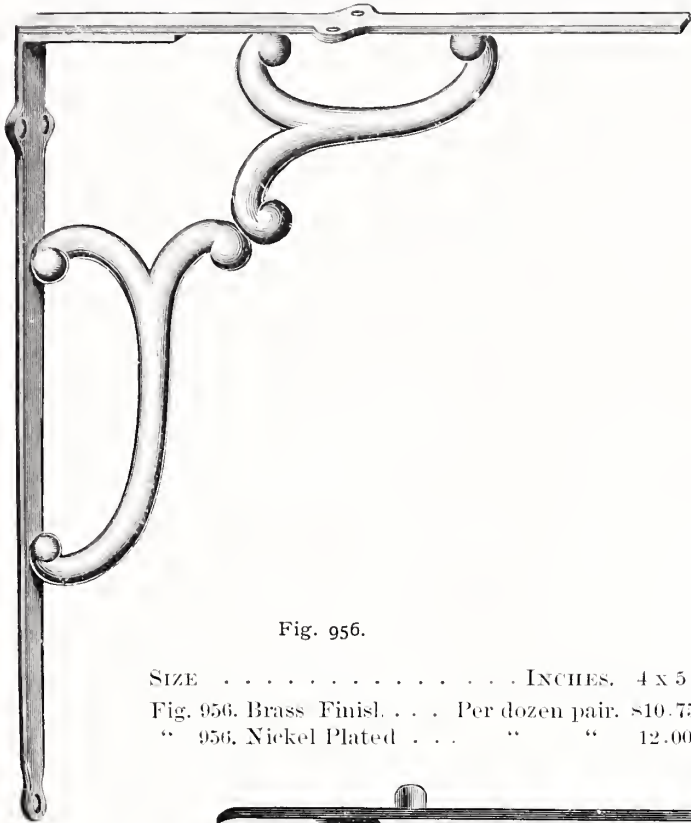


Fig. 956.

SIZE . . . . .	INCHES.	4 x 5	6 x 8	7 x 9	8 x 10	9 x 11	16 x 18
Fig. 956. Brass Finish. . . . .	Per dozen pair.	\$10.75	14.75	17.50	20.50	21.50	46.75
" 956. Nickel Plated . . . . .	" "	12.00	17.50	20.00	23.00	24.00	51.00

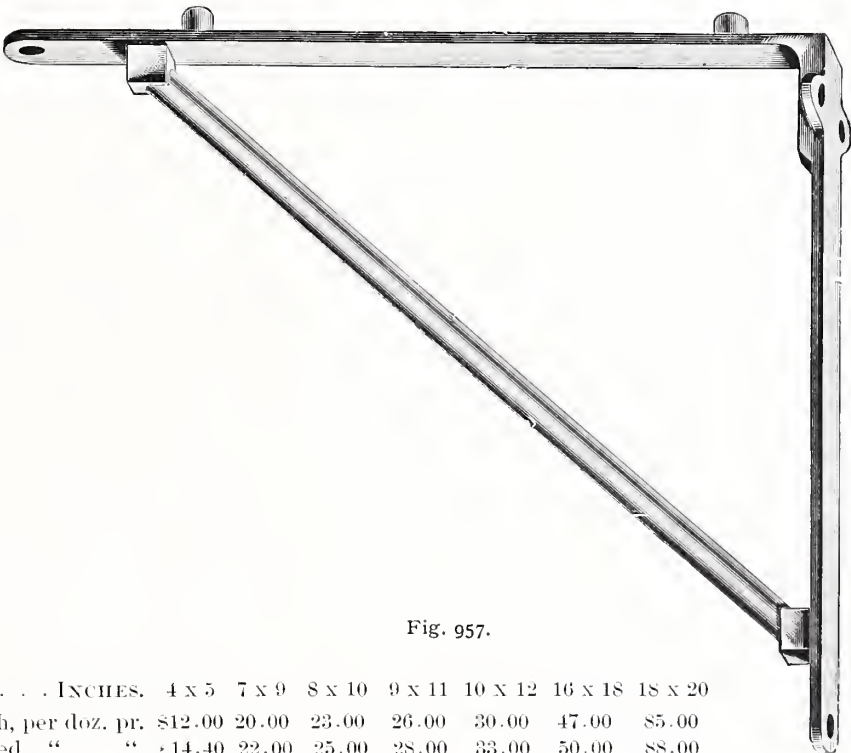


Fig. 957.

SIZE . . . . .	INCHES.	4 x 5	7 x 9	8 x 10	9 x 11	10 x 12	16 x 18	18 x 20
Fig. 957. Brass Finish, per doz. pr.		\$12.00	20.00	23.00	26.00	30.00	47.00	85.00
" 957. Nickel Plated, " " "		14.40	22.00	25.00	28.00	33.00	50.00	88.00

SOLID BRASS BRACKETS—CONTINUED.

WITH SLAB BAR OR METAL APRON.

LISTED BY THE DOZEN PAIR.

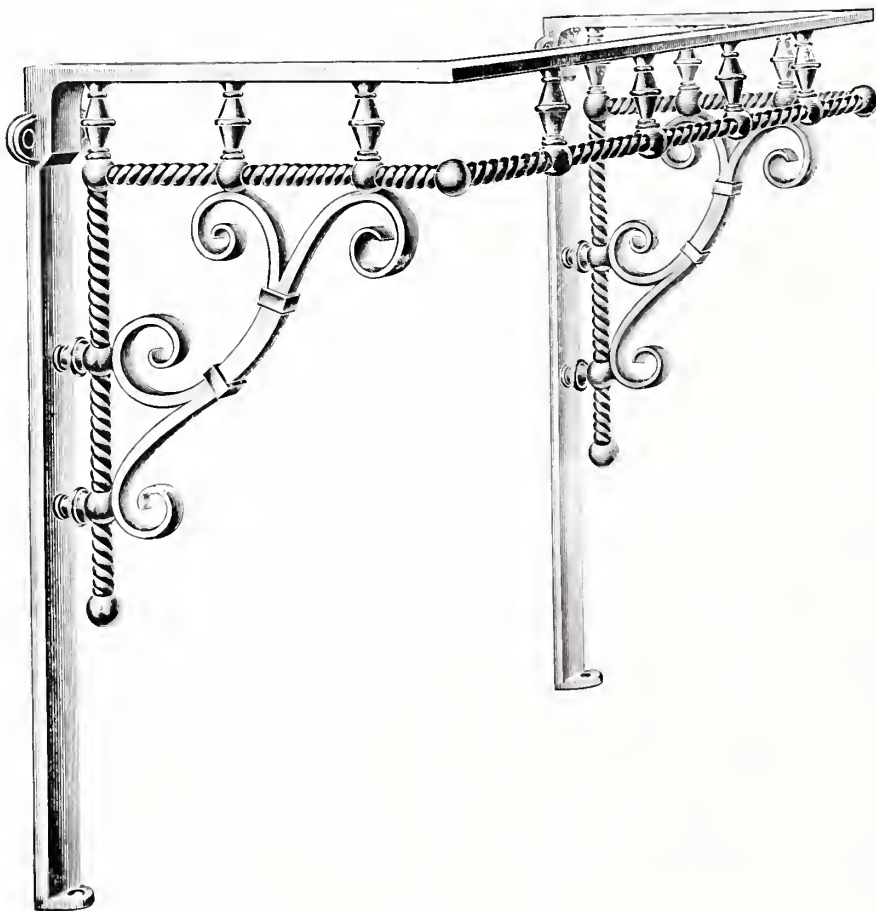


Fig. 958.

With Metal Apron 28 inches or 30 inches across the front as desired.

SIZE. . . . .	INCHES.	20 x 20	20 x 28½
Fig. 958. Brass Finish, with Apron. . . . .	Per dozen pair.	\$192.00	206.50
“ 958. Nickel Plated “ “ . . . . .	“ “	212.00	225.00

## SOLID BRASS BRACKETS—CONTINUED.

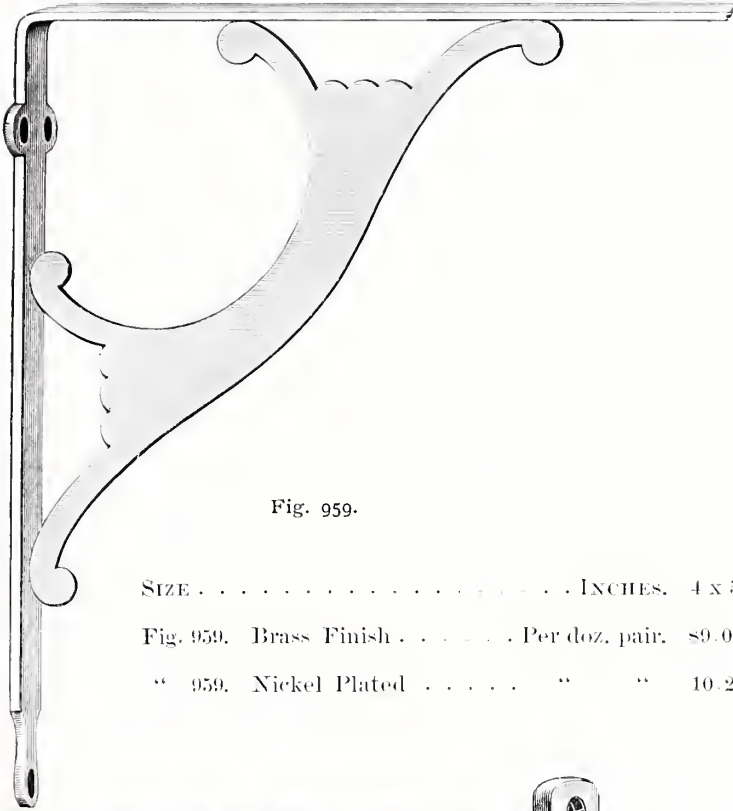


Fig. 959.

SIZE . . . . .	INCHES.	4 x 5	7 x 9	8 x 10	9 x 10	9 x 11
Fig. 959. Brass Finish . . . . .	Per doz. pair.	\$9.00	13.00	15.00	16.25	17.75
" 959. Nickel Plated . . . . .	" "	10.25	15.00	16.25	17.75	19.25

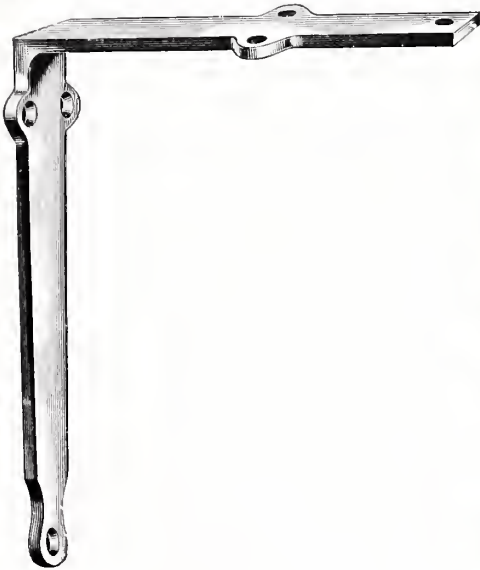


Fig. 960.

SIZE . . . . .	INCHES.	4 x 5
Fig. 960. Brass Finish . . . . .	Per doz. pair.	\$7.40
" 960. Nickel Plated . . . . .	" "	9.40

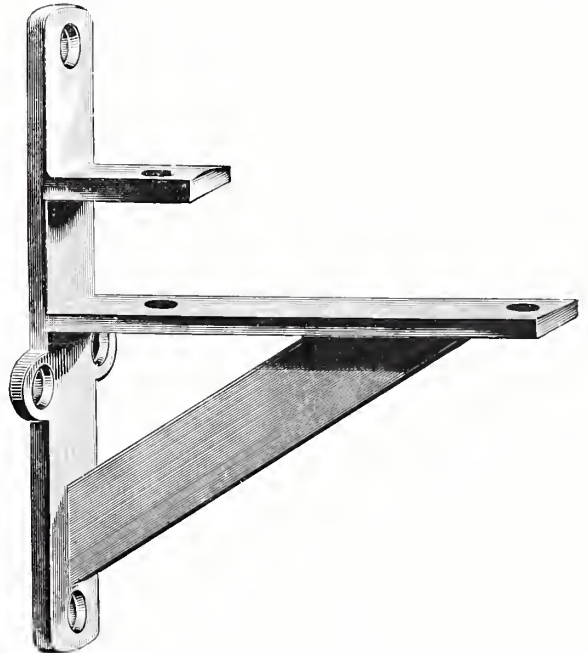


Fig. 961.

SIZE . . . . .	INCHES.	6 x 6
Fig. 961. Brass Finish . . . . .	Per doz. pair.	\$13.20
" 961. Nickel Plated . . . . .	" "	16.00
Finished only in the upper parts.		



# SOLID BRASS TANK AND SEAT BRACKETS.

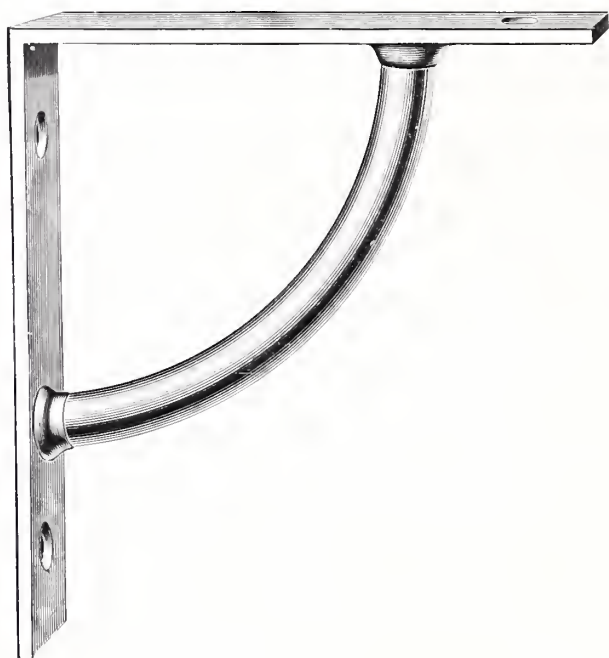


Fig. 962.

PER DOZEN PAIR.

SIZE . . . . INCHES. 5 x 5 7½ x 7½ 8 x 8

Fig. 962, Brass Finish. \$10.75 16.00 18.00

" 962, Nickel Plated 12.00 18.00 20.00

QUARTER CIRCLE.

PER DOZEN PAIR.

Fig. 963, Brass Finish . . . . . \$11.25

" 963, Nickel Plated . . . . . 12.70

One fourth of a Circle of 15 inches diameter.

Bracket 7½ inches long. Wall projection 6 inches.



Fig. 963.

# NICKEL PLATED IRON BRACKETS.

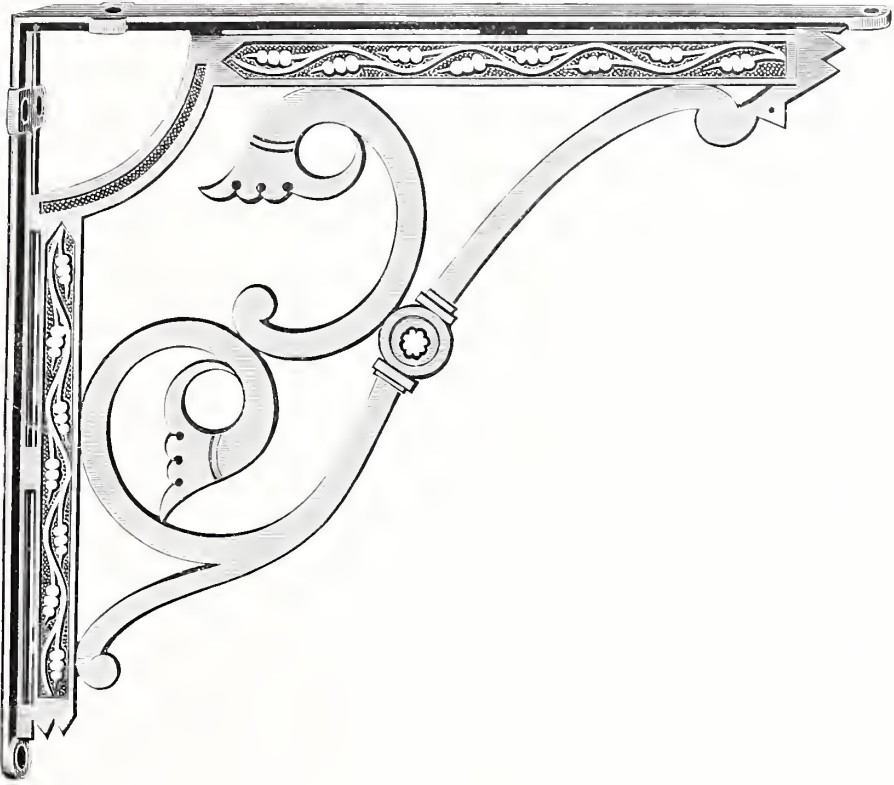
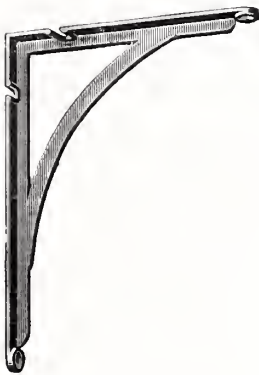


Fig. 964.

SIZE. . . . . INCHES.	3 x 4	4 x 5	5 x 7	6 x 8	7 x 9	8 x 10	9 x 11	10 x 12	12 x 15	16 x 18
Fig. 964. . . . Per dozen pair.	\$2.75	2.90	4.10	5.00	6.00	7.50	8.25	11.00	15.00	32.00



## JAPANNED IRON BRACKETS.

Fig. 965.	Size,	4 x 5 inches . . . . .	Per pair.	\$0.15
" 965.	"	6 x 8 " . . . . .	"	.20
" 965.	"	7 x 9 " . . . . .	"	.25
" 965.	"	10 x 12 " . . . . .	"	.40
" 965.	"	12 x 14 " . . . . .	"	.75

Fig. 965.

BASIN COCK SUPPLY PIPES.

FOR OPEN LAVATORIES.

No. 1.



Fig. 966.

No. 2.

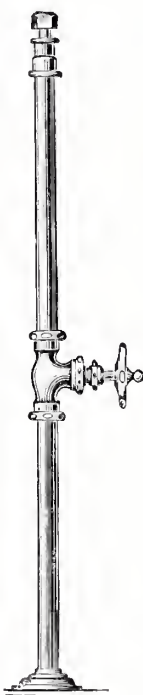


Fig. 967.

No. 3.

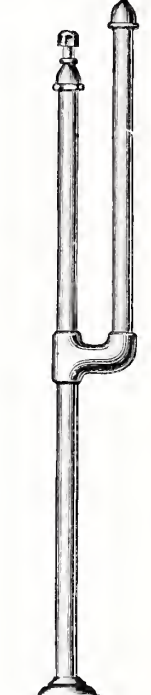


Fig. 968.

No. 4.

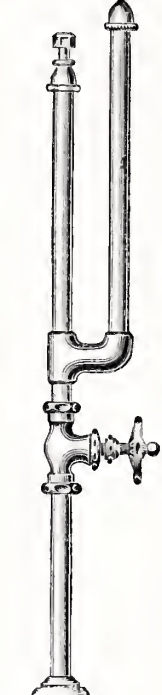


Fig. 969.

No. 5.



Fig. 970.

No. 6.

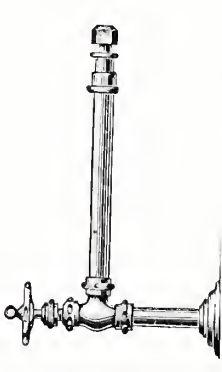


Fig. 971.

No. 7.

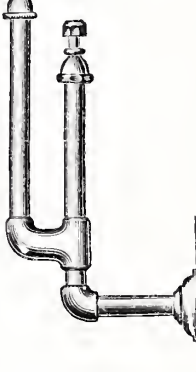


Fig. 972.

No. 8.

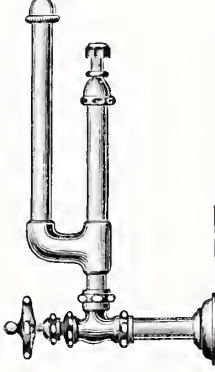


Fig. 973.

Fig. 966.	Polished Brass . . . . .	Each, \$2.75
" 966.	Nickel Plated . . . . .	" 3.00
" 967.	Polished Brass . . . . .	" 5.00
" 967.	Nickel Plated . . . . .	" 5.50
" 968.	Polished Brass . . . . .	" 4.50
" 968.	Nickel Plated . . . . .	" 5.00
" 969.	Polished Brass . . . . .	" 6.75
" 969.	Nickel Plated . . . . .	" 7.50

Fig. 970.	Polished Brass . . . . .	Each, \$2.25
" 970.	Nickel Plated . . . . .	" 2.50
" 971.	Polished Brass . . . . .	" 4.25
" 971.	Nickel Plated . . . . .	" 4.75
" 972.	Polished Brass . . . . .	" 4.00
" 972.	Nickel Plated . . . . .	" 4.50
" 973.	Polished Brass . . . . .	" 6.00
" 973.	Nickel Plated . . . . .	" 6.75

# “CLEAN SWEEP” TRAPS.

FULL S VENTED BRASS LAVATORY TRAPS.

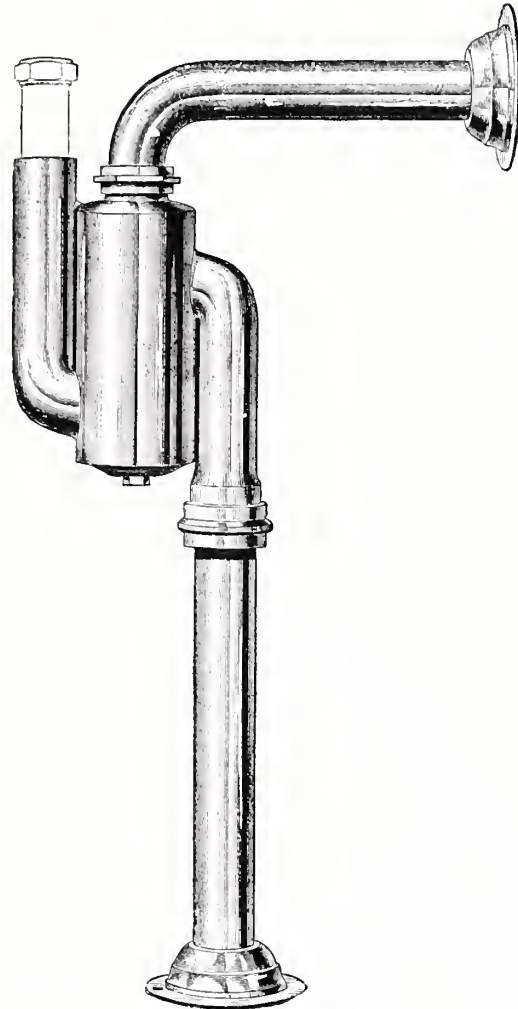


Fig. 974.

Complete with Pipe to Floor and Floor Plate, Vent to Wall and Wall Plate.  
Showing Basin Plug Tail Piece when fitted to Inlet.

SIZE . . . . .	INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$
Fig. 974. No. 1. Polished and Lacquered . . . . .		\$6.00	. .
“ 974. No. 2. Nickel Plated . . . . .		6.00	. .
“ 974. No. 3. Polished and Lacquered . . . . .		. .	7.50
“ 974. No. 4. Nickel Plated . . . . .		. .	7.50

Without Vent Pipe and Flange, deduct \$1.00 from List.

Order by Figure and Number.



“CLEAN SWEEP” TRAPS—CONTINUED.

HALF S VENTED BRASS LAVATORY TRAP.

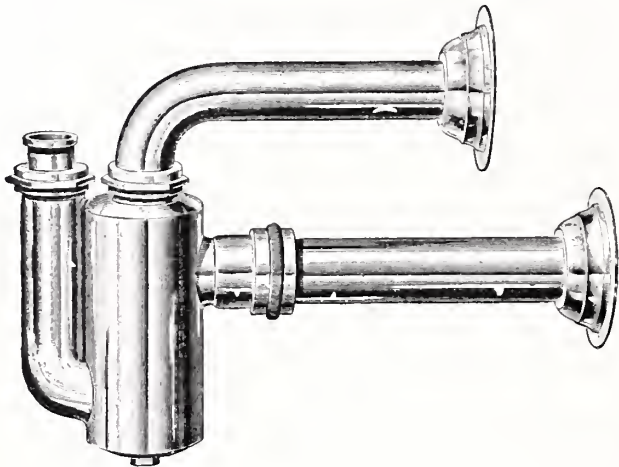


Fig. 975.

SIZE			INCHES.	1½	1½
Fig. 975.	No. 1.	Polished and Lacquered	6.00	7.50	7.50
" 975.	No. 2.	Nickel Plated	6.00	7.50	7.50
" 975.	No. 3.	Polished and Lacquered	6.00	7.50	7.50
" 975.	No. 4.	Nickel Plated	6.00	7.50	7.50



Fig. 976.

SIZE			INCHES.	1½	1½
Fig. 976.	No. 1.	Polished and Lacquered	87.00	8.25	8.25
" 976.	No. 2.	Nickel Plated	7.00	8.25	8.25
" 976.	No. 3.	Polished and Lacquered	7.00	8.25	8.25
" 976.	No. 4.	Nickel Plated	7.00	8.25	8.25

Add, for Patent Overflow Basin Plug fitted to Inlet, or Adjustable Inlet, 50 cents.  
If without Vent Pipe and Flange, deduct \$1.00 from List.

## LAVATORY TRAPS.

## THE "RICHMOND" S TRAP.

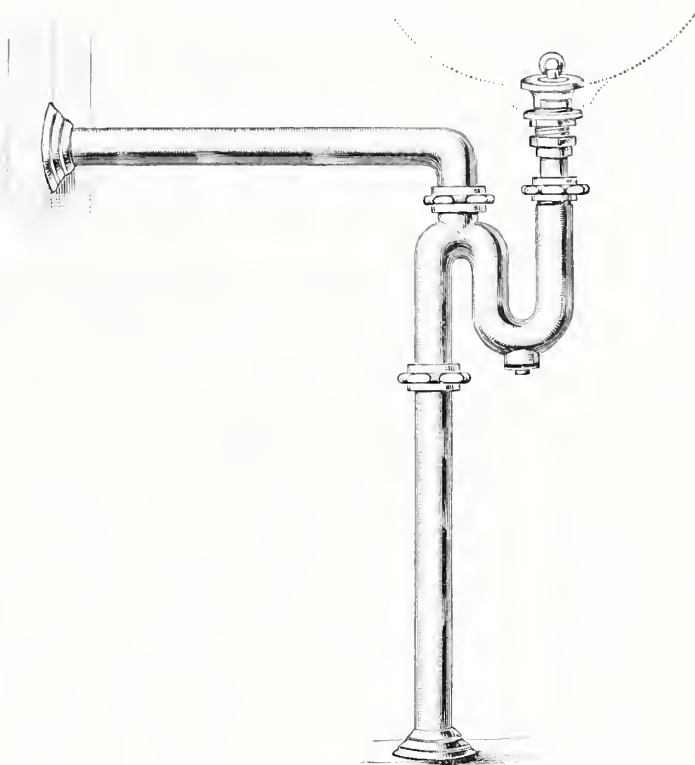


Fig. 977.

SIZE . . . . .	INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Fig. 977. Finished Brass . . . . .		85.50	7.00	11.00
" 977. Nickel Plated . . . . .		6.00	7.50	12.50

With Pipes to Floor or Wall and with Floor Plates. If without Vent, deduct from above List, 50 cts.

## THE "RICHMOND" HALF S OR P TRAP.

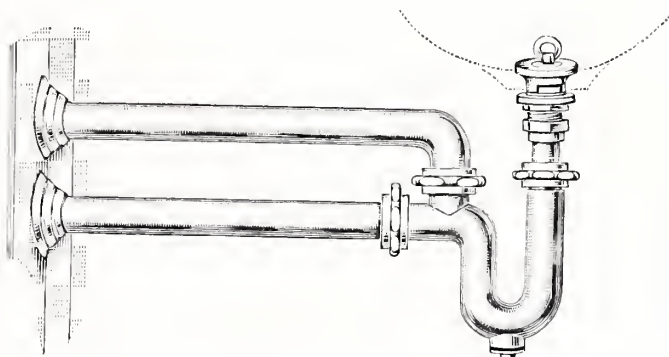


Fig. 978.

SIZE . . . . .	INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Fig. 978. Finished Brass . . . . .		85.00	6.00	10.50
" 978. Nickel Plated . . . . .		5.50	6.50	12.50

With Pipes to Floor or Wall and with Floor Plates. If without Vent, deduct from above List, 50 cts. Running Traps same List.

LAVATORY TRAPS—CONTINUED.

THE "OXFORD" TRAP.

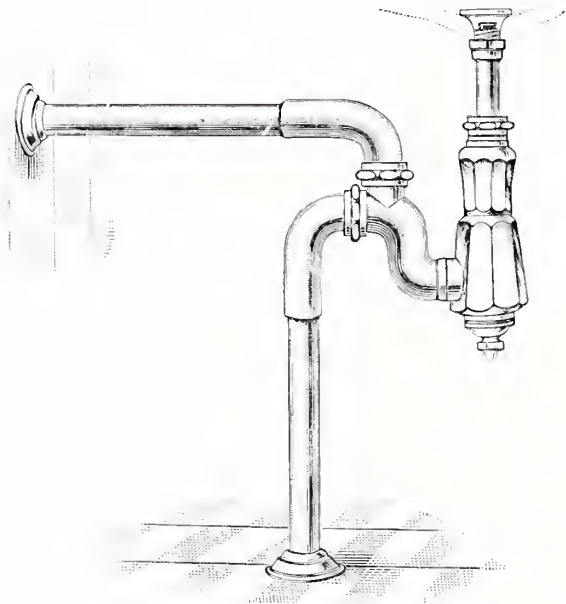


Fig. 979.

SIZE . . . . .	INCHES.	1 1/4	1 1/2
Fig. 979. Finished Brass . . . . .	\$7.00	8.00	
“ 979. Nickel Plated . . . . .	7.50	8.50	

With Pipes to Floor and Wall and with Floor and Wall Plates.  
If without Vent deduct from the above List 50 cents.

"PURITAN" ADJUSTABLE TRAP.

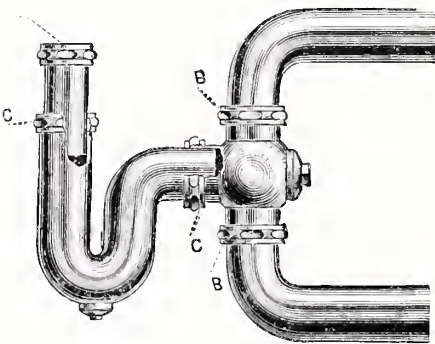


Fig. 980.

This Trap has an inspection screw at the back of the bulb for the purpose of ascertaining if the vent pipe is clear. The Vent and Waste Tubes are made 8 inches long so that they can be cut any length to suit. The Couplings B B allow the Trap to be swung at any angle, and at each of the Couplings C, the slip joint allows of adjustment, so that with any attempt at accurate measurement (in roughing) this Trap will fit.

SIZE . . . . .	INCHES.	1 1/2	2
Fig. 980. Polished Brass . . . . .	\$6.50	11.00	
“ 980. Nickel Plated . . . . .	7.50	12.50	

C. H. MOORE'S PATENT.

## PATENT SANITARY TRAPS.

"THE SNAIL."

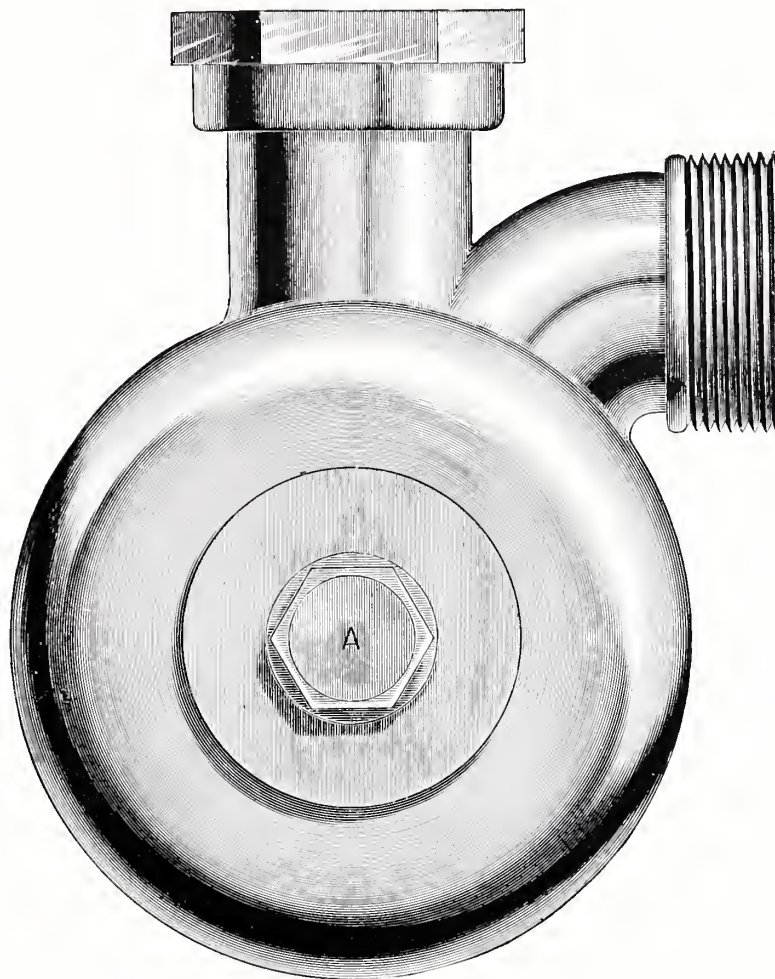


Fig. 981.

The above shows a self-cleaning mechanical Trap for Wash Basins only, and for this purpose it cannot be excelled, as it is a well-made, handsomely shaped, sanitary Fitting, the Ball Valve always providing against any inflow of sewer gas in the event of the Trap becoming empty from being unused for a long time. The Trap Screw A, is  $1\frac{1}{4}$  inches diameter, the size of the outer Ring. The Ball Valve is made of spun metal, and the Valve Seat is made perfectly true. Two Couplings are supplied with each Trap.

Fig. 981. With two Couplings, Rough . . . . .	\$3.50
" 981. Polished Brass . . . . .	4.00
" 981. Nickel Plated . . . . .	4.50



BASIN WASTES AND OVERFLOWS.

ACME WASTE.

HOPKINS BASIN WASTE.

C. H. MOORE'S PATENT.  
THE "OXFORD" WASTE.

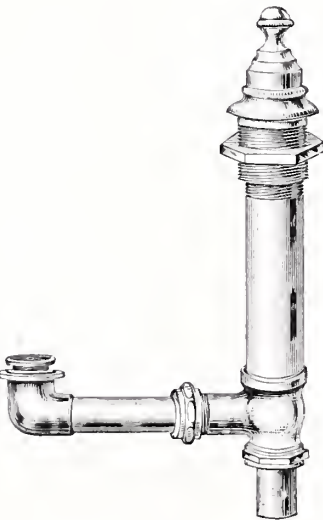


Fig. 982.

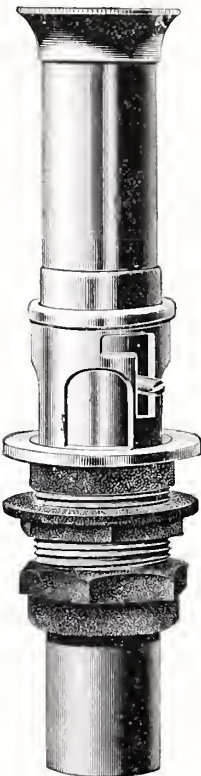


Fig. 983.

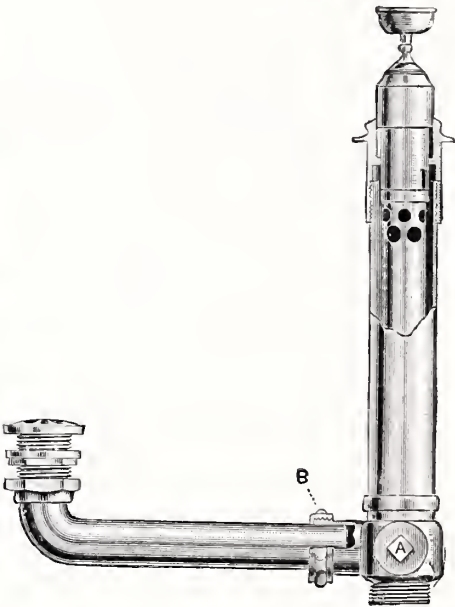


Fig. 984.

Fig. 982.	Rough Body, Nickel Plated Top and Stramer . . . . .	87.00
" 982.	Finished and Nickel Plated all over . . . . .	9.00
" 983.	Rough Couplings, Nickel Plated Top . . . . .	3.00
" 983.	Finished and Nickel Plated all over . . . . .	4.00
" 984.	Rough Body, Nickel Plated Top and Strainer . . . . .	7.50
" 984.	Finished and Nickel Plated all over . . . . .	9.50

C. H. MOORE'S PATENT.

## PATENT BASIN COMBINATION.

"THE PRIMROSE."

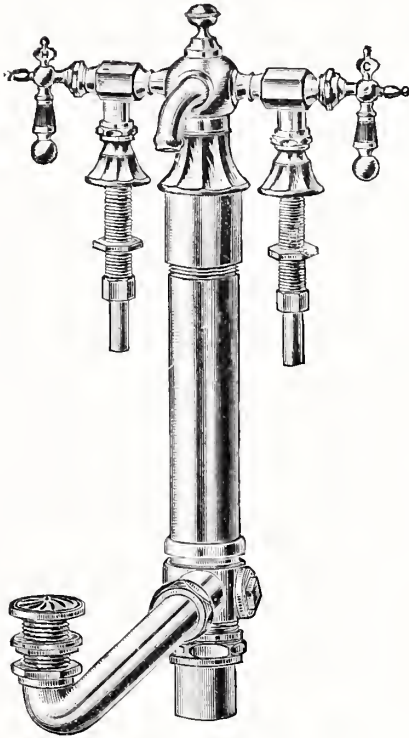


Fig. 985.

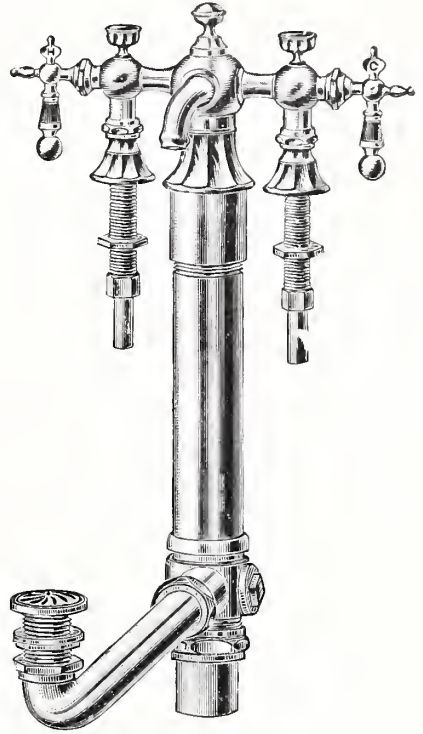


Fig. 986.

The above shows a Basin Waste, having Hot and Cold Water Cocks, joined to it on either side, and a Hollow Waste Valve and Overflow in the upright centre casing, which is operated by the handle between the two Cocks, and can be taken out by turning it a trifle further after the valve is opened and simply lifting it.

The Water Channel that connects the Nozzle to the Cocks is cast in the enlarged centre-piece between the inside cylinder in which the Pull works and the finished outside surface.

The Cocks can be removed to repair by unscrewing the nuts above the base. The base of the Waste separates from the centre-piece, on which the Nozzle is.

C. H. MOORE'S PATENT.

# PATENT BASIN COMBINATION—CONTINUED.

“PRIMROSE.”

LOW DOWN PATTERN.

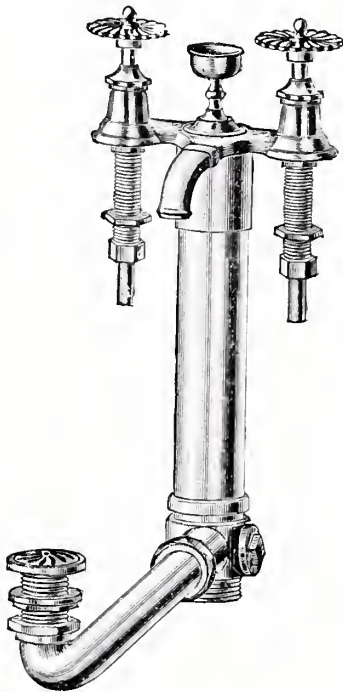


Fig. 987.

“PRIMROSE.”

COMPRESSION PATTERN.

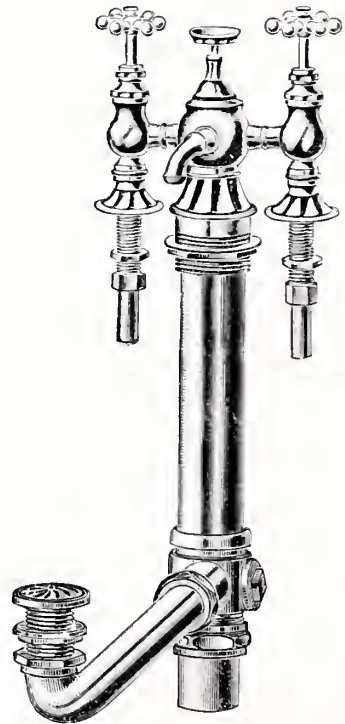


Fig. 988

Fig. 987 represents a Basin Waste having Low Down Compression Cocks joined to it on each side by a water channel, which extends around the front section of the passage shown under the ring cup handle, between the two Cocks, and through which the upper part or stem of the Waste Valve operates.

Fig. 988 shows a “Primrose” Combination having the regular height Compression Cocks.

Each of the Nozzles on these Fixtures are threaded for hose attachment and sprinkler.

Figs. 987, 988. Nickel Plated all over . . . . . \$16.00

C. H. MOORE'S PATENT.

# PATENT BASIN COMBINATION.

## CONTINUED.

"PRIMROSE" No. 4.

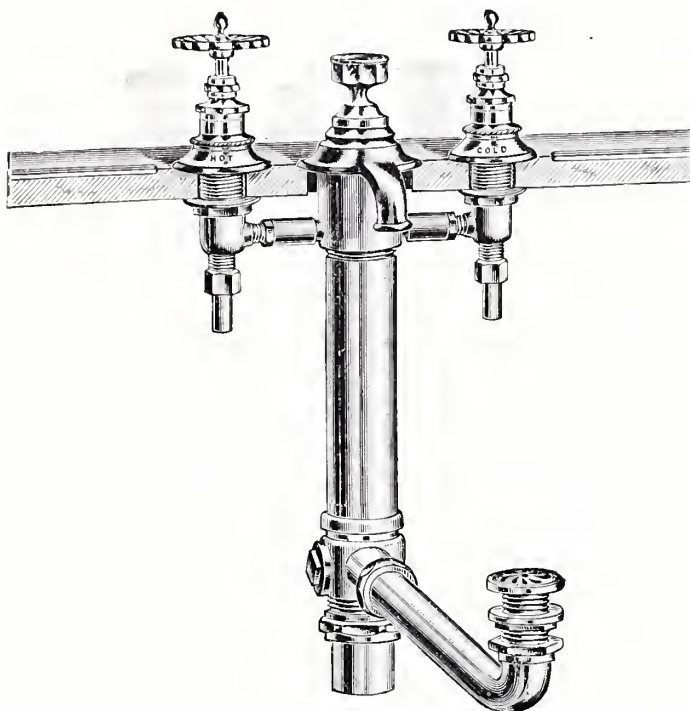


Fig. 989.

Figs. 989 to 991 show sections of Wash Basin Slabs with Low Down "Primrose" Combination Basin Wastes, connected.

The upper end of the Basin Waste unscrews from the casting on the Waste Valve, and is put through the hole in the Slab from the top. The Cocks are put through from the bottom, and the Locknuts on the Cocks hold the Fixture rigid.

The Supply Valves on these three Fixtures are 12 inches from centre to centre, but can be shortened to be 9 inches centre to centre if desired, by cutting the connecting tubes.

With each "Primrose" Fixture of any kind we furnish a templet to cut the Slab by.

Fig. 989. Price . . . . . \$17.00



C. H. MOORE'S PATENT.

## PATENT BASIN COMBINATION—CONTINUED.

"PRIMROSE" No. 5.

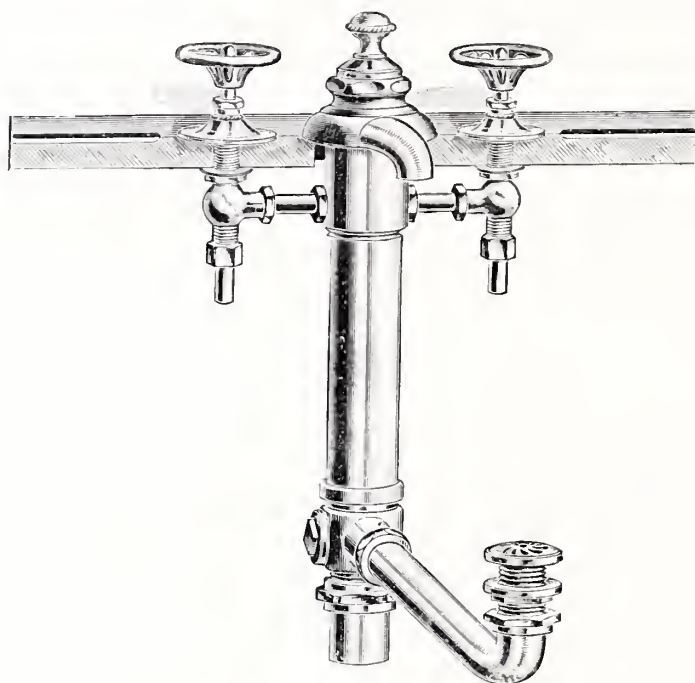


Fig. 990.

"PRIMROSE" No. 6.

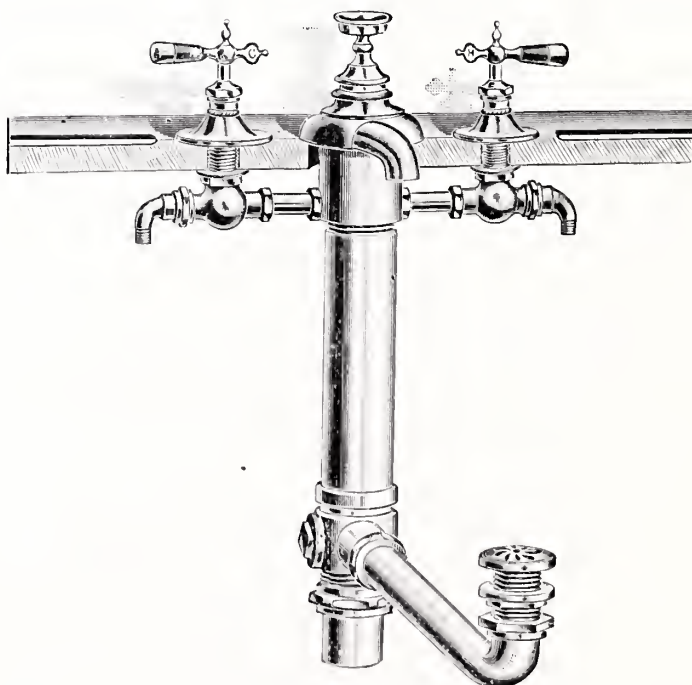


Fig. 991.

Figs. 990 and 991. Price . . . . . Each. \$17.00

## REVISED LIST OF EARTHENWARE.

## ROUND BASINS.

SIZE . . . . . INCHES.	12	13	14	15	16
No Overflow . . . . .	\$0.80	1.00	1.15	1.80	2.25
Common Overflow . . . . .	1.05	1.25	1.40	2.00	2.75
Patent Overflow . . . . .	1.15	1.30	1.50	2.25	3.00
“ “ for Rubber Plug . . . . .	1.40	1.55	1.70	2.50	3.50

## OVAL BASINS.

SIZE . . . . . INCHES.	14 x 17	15 x 19	16 x 21
No Overflow . . . . .	\$3.50	5.00	6.00
Common Overflow . . . . .	3.50	5.00	6.00
Patent “ “ . . . . .	3.80	5.30	6.30
“ “ for Rubber Plug . . . . .	4.25	5.75	6.75

## SQUARE, RECESS AND STRAIGHT-BACK BASINS.

SIZE . . . . . INCHES.	14	15	16	14 x 17	15 x 19
Square Basins, no Overflow . . . . .	..	..	..	\$7.00	8.50
“ “ Common Overflow . . . . .	..	..	..	7.00	8.50
“ “ Patent Overflow . . . . .	..	..	..	7.50	9.00
“ “ “ Rub. Plug . . . . .	..	..	..	7.95	9.45
Recess Basin, Oval . . . . .	..	..	..	7.00	8.50
“ “ Round . . . . .	5.00	6.00	7.00	..	..
“ “ Oval Embossed . . . . .	..	..	..	8.00	9.50
“ “ Round Embossed . . . . .	6.00	7.00	8.00	..	..
Straight-Back Oval, no Overflow . . . . .	..	..	..	6.25	7.75
“ “ Patent Overflow . . . . .	..	..	..	7.00	8.50
“ “ Round . . . . .	5.00	6.00	7.00	..	..
“ “ Oval Embossed, N. O. . . . .	..	..	..	7.25	8.75
“ “ “ P. O. . . . .	..	..	..	8.00	9.50
“ “ Round Embossed . . . . .	6.00	7.00	8.00	..	..

## BEDFORDSHIRE URINALS.

NUMBER . . . . .	1	2	3
Flat Back . . . . .	\$9.30	7.10	6.70
Corner . . . . .	9.30	7.10	6.70
Flat Back, Lipped . . . . .	13.50	11.25	10.70
Corner, Lipped . . . . .	13.50	11.25	10.70
Flat Back, Lipped, Vent and Hood . . . . .	17.45	13.90	..
Corner, Lipped, Vent and Hood . . . . .	17.45	13.90	..

REVISED LIST OF EARTHENWARE.  
CONTINUED.

WASHOUT CLOSETS—FRONT, BACK OR SIDE OUTLET.

NUMBER . . . . .	1	2	3
Plain . . . . .	\$22.35	21.05	18.40
Embossed . . . . .	25.00	23.70	21.05
Plain Pedestal . . . . .	26.30	23.70	21.70
Embossed Pedestal . . . . .	28.95	26.30	24.35
Oval, Front Outlet, Square Back, Plain . . . . .	29.50	26.75	. .
"    "    "    "    "    Embossed . . . . .	32.15	29.50	. .
Square, Back or Front Outlet, Plain . . . . .	30.25	. .	. .
"    "    "    "    "    Embossed . . . . .	32.90	. .	. .
Oval Front, Front Outlet, Open Trap, Square Back, Plain . . . . .	. .	24.05	. .
"    "    "    "    "    Embossed . . . . .	. .	26.55	. .
Square Pedestal, Back or Front Outlet, Plain . . . . .	32.90	. .	. .
"    "    "    "    "    Embossed . . . . .	35.55	. .	. .
Washout Closet for Iron Trap . . . . .	14.45	13.15	. .

FLUSHING RIM HOPPERS.

	Plain.	Seat Vent.	Hub Vent
Oval Tall . . . . .	\$10.50	10.80	11.20
Round Tall . . . . .	7.25	7.50	7.90
Square Tall, 14x14 inches . . . . .	13.15	13.40	13.80
Oval Short . . . . .	5.00	5.30	5.70
Round Short . . . . .	4.25	4.50	4.90
Square Short . . . . .	8.55	8.80	9.20

CLOSET BOWLS, TRAPS, ETC.

	Price.
Square Long Hopper, 16x16 inches . . . . .	\$21.05
Oval Flushing Rim Closet Bowl, Plain . . . . .	3.25
"    "    "    "    "    Seat Vent . . . . .	3.55
Traps . . . . .	4.60
Drip Traps, Oval and Round . . . . .	5.00
Hopper Stands, no Vent . . . . .	2.50
"    "    Hub Vent . . . . .	3.00
Floats, Large, above 7 inches . . . . .	.65
"    Small, under 7 " . . . . .	.55

SHORT HOPPER AND TRAP COMBINED.

	Price.		Price.
Oval Short Hopper and Trap combined, Plain . . . . .	\$14.45	With Seat Vent . . . . .	\$14.75
"    "    "    "    "    Embossed . . . . .	17.10	"    "    "    "    "    Embossed . . . . .	17.35
Square "    "    "    "    "    Plain . . . . .	17.10	"    "    "    "    "    Embossed . . . . .	17.35
"    "    "    "    "    Embossed . . . . .	19.75	"    "    "    "    "    Embossed . . . . .	20.00

## REVISED LIST OF EARTHENWARE.

CONTINUED.

## CLOSET BOWLS.

	Price.
Round French Closet Bowls . . . . .	\$1.45
Oval Closet Bowls . . . . .	1.65
Pipe Wash Closet Bowls, Round . . . . .	2.75
"    "    "    "    Round Vented . . . . .	3.25
"    "    "    "    Oval . . . . .	3.25
"    "    "    "    Oval Vented . . . . .	3.70
Philadelphia Hoppers . . . . .	3.25
Ship Closet Basin, No. 1 . . . . .	2.20
"    "    "    No. 2 . . . . .	2.00
Ship Plug Basin, 13 inches . . . . .	1.80
"    "    "    14 " . . . . .	2.10
Bidet Pan for Brass Plug, Plain . . . . .	5.50
"    "    "    "    with Overflow . . . . .	5.75
"    "    "    "    no Hole . . . . .	5.00

## METAL CONNECTIONS.

SIZE . . . . . INCHES.	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Straight, Rough . . . . .	80.30	.35	.45	.60
"    Finished . . . . .	.50	.55	.65	.80
Bent, Rough . . . . .	.35	.40	.50	.65
"    Finished . . . . .	.55	.60	.70	.85

PACKAGES TO BE CHARGED AS FOLLOWS, NET:

	Price.
Crates . . . . .	\$2.00
Hhds., Extra Large . . . . .	2.00
"    Large . . . . .	1.50
"    Medium . . . . .	1.25
"    Small . . . . .	1.00
Tierces, Large . . . . .	1.00
"    Small . . . . .	.75
Boxes . . . . .	.50
Barrels . . . . .	.35

When returned with straw, freight prepaid, and in good condition, to be credited at one-half above prices.



BASINS.

OVAL EMBOSSED RECESS BASIN.

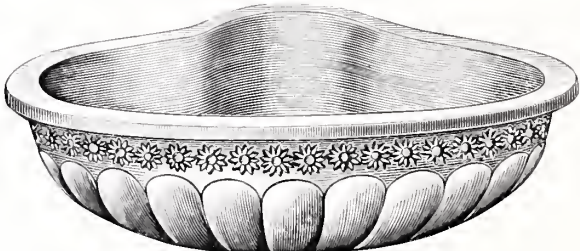


Fig. 992.

OUTSIDE MEASURE . . . . .	INCHES.	15 x 19
Fig. 992 . . . . .		\$9.50
Usual number in Crate . . . . .		24

Approximate weight of Crate, packed, 550 lbs.

PATENT OVERFLOW BASIN FOR RUBBER PLUG.



Fig. 993.

OUTSIDE MEASURE . . . . .	INCHES.	12	13	14	15	16
Fig. 993 . . . . .		\$1.40	1.55	1.70	2.50	3.50
Usual number in Crate . . . . .		52	48	48	40	38

Approximate weight of Crate, packed, 600 to 800 lbs.

PATENT OVERFLOW BASIN.



Fig. 994.

OUTSIDE MEASURE . . . . .	INCHES.	12	13	14	15	16
Fig. 994 . . . . .		\$1.15	1.30	1.50	2.25	3.00
Usual number in Crate . . . . .		55	50	48	44	40

Approximate weight of Crate, packed, 600 to 800 lbs.

BASINS — CONTINUED.

COMMON OVERFLOW BASIN.



Fig. 995.

OUTSIDE MEASURE. . . . .	INCHES.	12	13	14	15	16
Fig. 995. . . . .		\$1.05	1.25	1.40	2.00	2.75
Usual number in Crate . . . . .		60	58	52	50	48

Approximate weight of Crate, packed, 600 to 800 lbs.

OVAL, STRAIGHT-BACK BASINS, NO OVERFLOW.

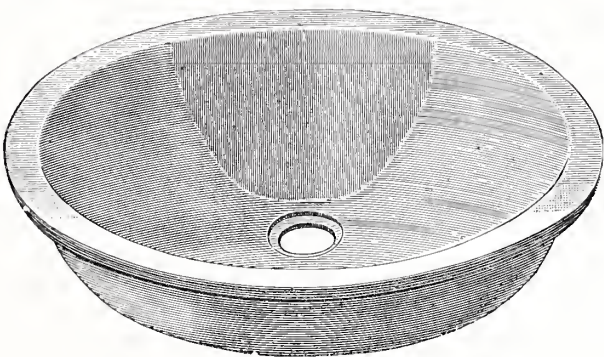


Fig. 996.

OUTSIDE MEASURE. . . . .	INCHES.	14 x 17	15 x 19
Fig. 996. . . . .		\$6.25	7.75
Usual number in Crate . . . . .		40	30

Approximate weight of Crate, packed, 500 to 700 lbs.

NO OVERFLOW BASIN.



Fig. 997.

OUTSIDE MEASURE. . . . .	INCHES.	10	12	13	14	15	16
Fig. 997. . . . .		\$0.80	.80	1.00	1.15	1.80	2.25
Usual number in Crate . . . . .		90	70	65	65	55	53

Approximate weight of Crate, packed, 600 to 800 lbs.

BASINS—CONTINUED.

SQUARE BASIN, NO OVERFLOW.



Fig. 998.

OUTSIDE MEASURE . . . . .	INCHES.	14 x 17	15 x 19
Fig. 998 . . . . .		\$7.00	8.50
Usual number in Crate . . . . .		36	30
Approximate weight of Crate, packed, 500 to 700 lbs.			

RECESS BASIN.

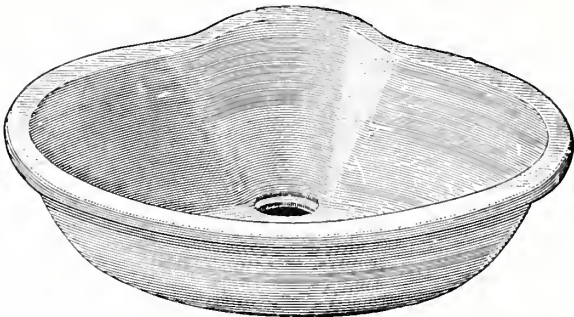


Fig. 999.

OUTSIDE MEASURE . . . . .	INCHES.	14	15	16	14 x 17	15 x 19
Fig. 999, Round . . . . .		\$5.00	6.00	7.00	..	..
" 999, Oval . . . . .		..	..	..	7.00	8.50
Usual number in Crate . . . . .		30	30	30	30	24
Approximate weight of Crate, packed, 500 to 700 lbs.						

OVAL BASIN.

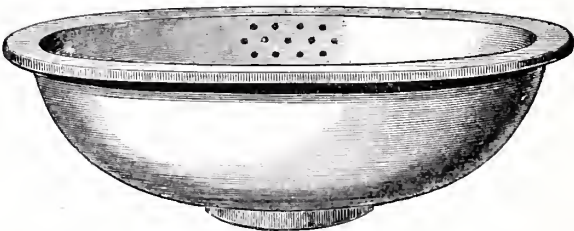


Fig. 1000.

	Outside Measure, 14 x 17 Inches.	Usual Number in Crate.	Outside Measure, 15 x 19 Inches.	Usual Number in Crate.	Outside Measure, 16 x 21 Inches.	Usual Number in Crate.
No Overflow . . . . .	\$3.50	48	\$5.00	44	\$6.00	40
Common Overflow . . . . .	3.50	48	5.00	34	6.00	30
Patent Overflow . . . . .	3.80	46	5.30	32	6.30	28
Patent Overflow, Rubber Plug . . . . .	4.25	40	5.75	30	6.75	24

Approximate weight of Crate, packed, 500 to 700 lbs.



# FLUSHING RIM EARTHEN HOPPERS.

SQUARE SHORT.

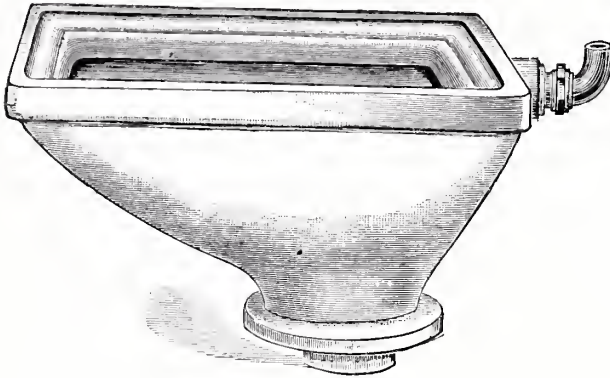


Fig. 1001.

OVAL TALL.



Fig. 1002.

Fig. 1001 . . . . .	\$8.55
" 1001. With Seat Vent . . . . .	8.80
Add for Metal Connection . . . . .	.40

Fig. 1002. Oval . . . . .	\$10.50
" 1002. With Seat Vent . . . . .	10.80
" 1002. " Hub Vent . . . . .	11.20
Add for Metal Connection . . . . .	.40

PHILADELPHIA PATTERN.



Fig. 1003.

SQUARE SHORT.



Fig. 1004.

Fig. 1003 . . . . .	\$3.25
Add for Metal Connections . . . . .	.40

Fig. 1004 . . . . .	\$5.00
" 1004. With Seat Vent . . . . .	5.30
Add for Metal Connection . . . . .	.40



CLOSET BOWLS, ETC.

FRENCH CLOSET BOWL.

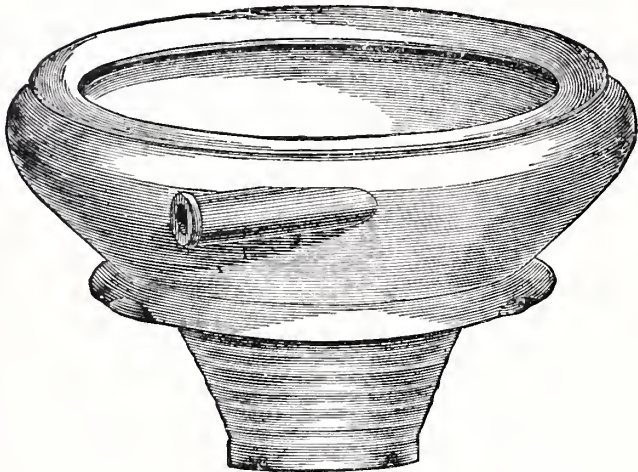


Fig. 1005.

Fig. 1005.	French . . . . .	\$1.45
" 1005.	Oval . . . . .	1.65

PIPE WASH CLOSET BOWL.



Fig. 1006.

Fig. 1006.	Round Pipe Wash, . . . . .	\$2.75
" 1006.	With Vent . . . . .	3.25
" 1006.	Oval Pipe Wash . . . . .	3.25
" 1006.	With Vent . . . . .	3.70

EARTHEN HOPPER TRAP.



Fig. 1007.

Fig. 1007.	Without Vent Connection . . . . .	\$4.60
	Add for 2-inch Vent Connection . . . . .	.65

DRIP TRAYS.



Fig. 1008.

Fig. 1008.	Earthen, Oval or Round, . . . . .	\$5.00
" 1008.	Enam. Iron " " " . . . . .	2.50

# EARTHEN URINALS.

FLAT-BACK BEDFORDSHIRE URINAL.

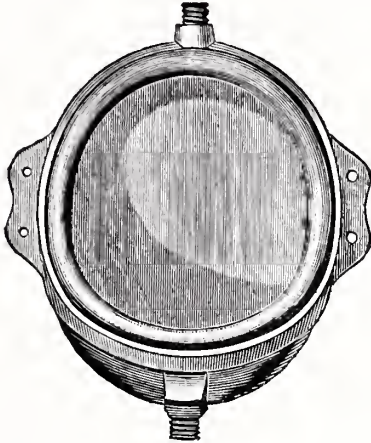


Fig. 1009.

NUMBER . . . . .	1	2	3
Fig. 1009 . . . . .	\$9.30	7.10	6.70
Measure, not including tabs and spouts . . .	15 x 18	13 x 15	12 x 14
Usual number in Crate . . . . .	16	24	28

Approximate weight of Crate, packed, 500 to 600 lbs.

Flat Bedfordshire Urinals are measured, horizontal measurement always named first.

FLAT-BACK LIP BEDFORDSHIRE URINAL.

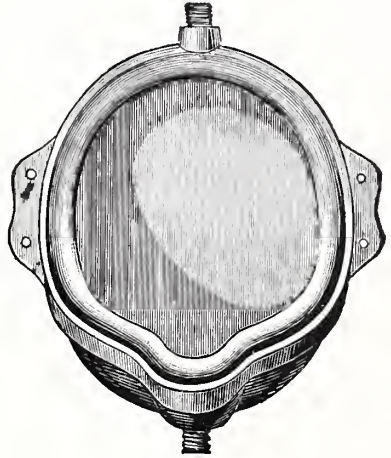


Fig. 1010.

NUMBER . . . . .	1	2	3
Fig. 1010 . . . . .	\$13.50	11.25	10.70
Measure, not including tabs and spouts . . .	15 x 18	13 x 15	12 x 14
Usual number in Crate . . . . .	14	20	24

Approximate weight of Crate, packed, 500 to 600 lbs.

CORNER LIP, BEDFORDSHIRE URINAL.

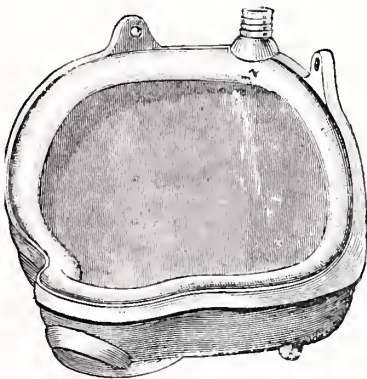


Fig. 1011.

NUMBER . . . . .	1	2	3
Fig. 1011 . . . . .	\$13.50	11.25	10.70
Measure, not including tabs and spouts, and from corner only . . . . .	13 x 13	11½ x 11½	10½ x 10½
Usual number in Crate . . . . .	24	24	24

Approximate weight of Crate, packed, 500 to 600 lbs.

CORNER BEDFORDSHIRE URINAL.

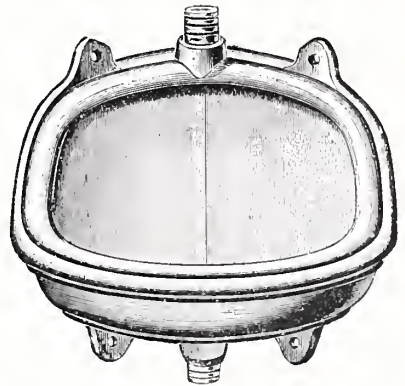


Fig. 1012.

NUMBER . . . . .	1	2	3
Fig. 1012 . . . . .	\$9.30	7.10	6.70
Measure, not including tabs and spouts, and from corner only . . . . .	13 x 13	11½ x 11½	10½ x 10½
Usual number in Crate . . . . .	24	24	24

Approximate weight of Crate, packed, 500 to 600 lbs.

WASHOUT CLOSETS.

OVAL PLAIN, FRONT OUTLET.



Fig. 1013.

Fig. 1013.	No. 1	.....	\$22.35
" 1013.	No. 2	.....	21.05
" 1013.	No. 3	.....	18.40

OVAL PLAIN, BACK OUTLET.



Fig. 1014.

Fig. 1014.	No. 1	.....	\$22.35
" 1014.	No. 2	.....	21.05
" 1014.	No. 3	.....	18.40

Couplings Extra.



# WASHOUT CLOSETS — CONTINUED.

"TOBASCUS" OVAL EMBOSSED PEDESTAL.



Fig. 1015.

Fig. 1015. Ivory Tint . . . . . \$24.35

"CUSHING" OVAL EMBOSSED, FRONT OUTLET.



Fig. 1016.

Fig. 1016. Ivory Tint . . . . . \$21.05  
Couplings Extra.



WASHOUT CLOSETS—CONTINUED.

“DORCHESTER” OVAL EMBOSSED PEDESTAL.



Fig. 1017.

Fig. 1017. Ivory Tint . . . . . \$26.20

“DUDLEY” OVAL EMBOSSED PEDESTAL.



Fig. 1018.

Fig. 1018. Ivory Tint . . . . . \$24.35

Couplings Extra.

WASHOUT CLOSETS — CONTINUED.

OVAL PLAIN PEDESTAL.

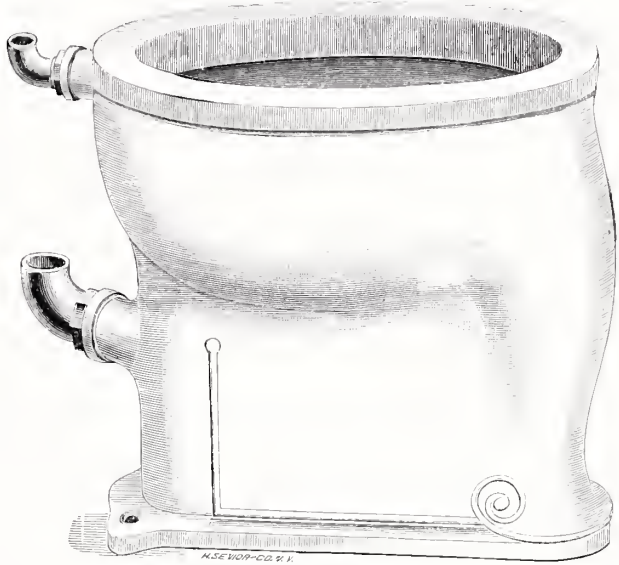


Fig. 1019.

Fig. 1019.	No. 2	.....	\$23.70
" 1019.	No. 3	.....	21.70

SQUARE HOPPER AND TRAP COMBINED.



Fig. 1020.

Fig. 1020.	Square	.....	\$17.10
" 1020.	" Seat Vent.	.....	17.35
		Couplings Extra.	

HOPPER AND TRAP COMBINED.

"NEWTON" OVAL EMBOSSED.



Fig. 1021.

Fig. 1021. Ivory Tint . . . . . \$17.35

"NEWTONVILLE" SQUARE EMBOSSED.



Fig. 1022.

Fig. 1022. Ivory Tint . . . . . \$20.00  
Couplings Extra.



# WATER CLOSET COMBINATIONS.

SHORT, OVAL, EARTHEN, FLUSHING RIM HOPPER AND EARTHEN TRAP, WITH TANK, COMPLETE.

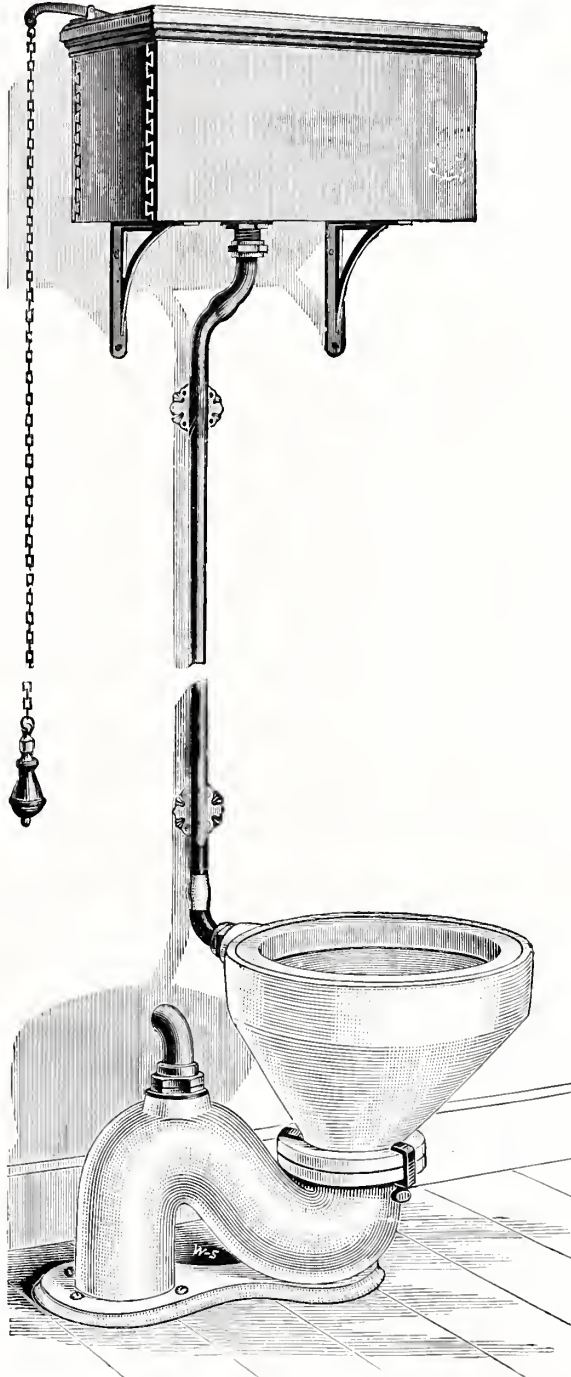


Fig. 1023.

Short, Oval, Earthen, Flushing Rim Hopper and Earthen Trap, with No. 1 Plain Cistern, in either Cherry or Oak Finish, Japanned Brackets, Nickel Plated Chain and Pull. . . . \$21.00



WATER CLOSET COMBINATIONS.  
CONTINUED.

SHORT, OVAL, EARTHEN, FLUSHING RIM HOPPER AND IRON S TRAP, WITH 2-INCH  
ANGLE VENT.

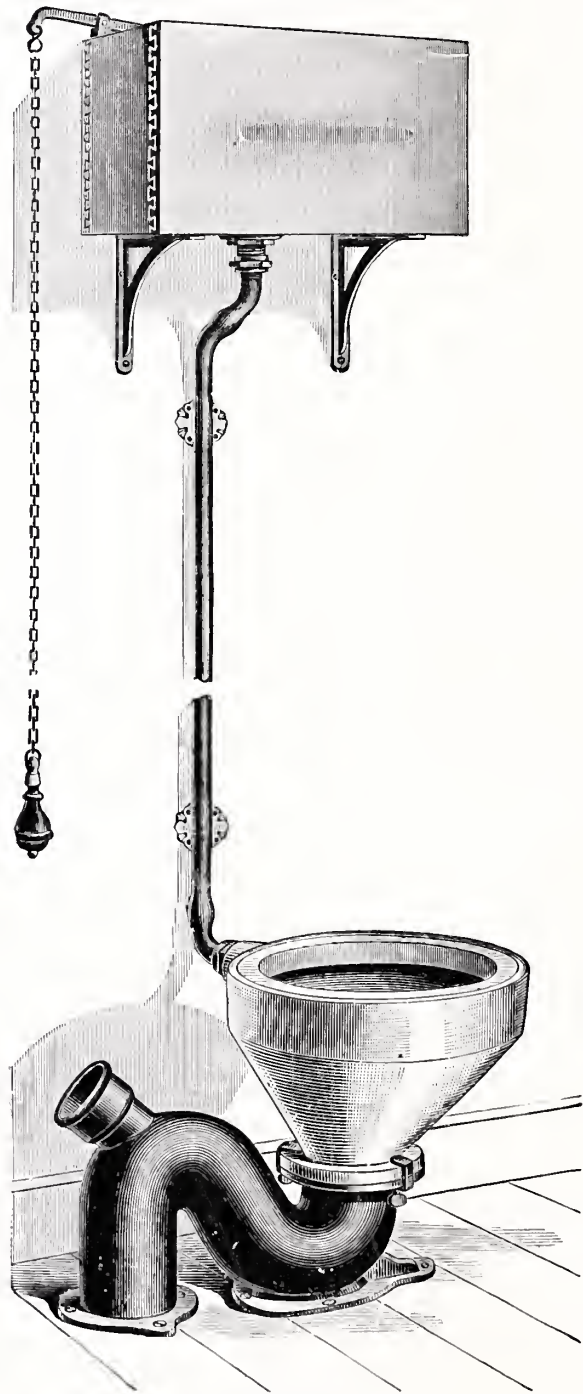


Fig. 1024.

Short, Oval, Earthen, Flushing Rim Hopper, with Vented Iron Trap, No. 1 Plain Cistern,  
Japanned Brackets, Nickel Plated Chain and Pull . . . . . \$16.75

# WATER CLOSET COMBINATIONS.

## CONTINUED.

SHORT, OVAL, EARTHEN, FLUSHING RIM HOPPER, WITH IRON HOPPER BODY AND VENTED S TRAP COMBINED.

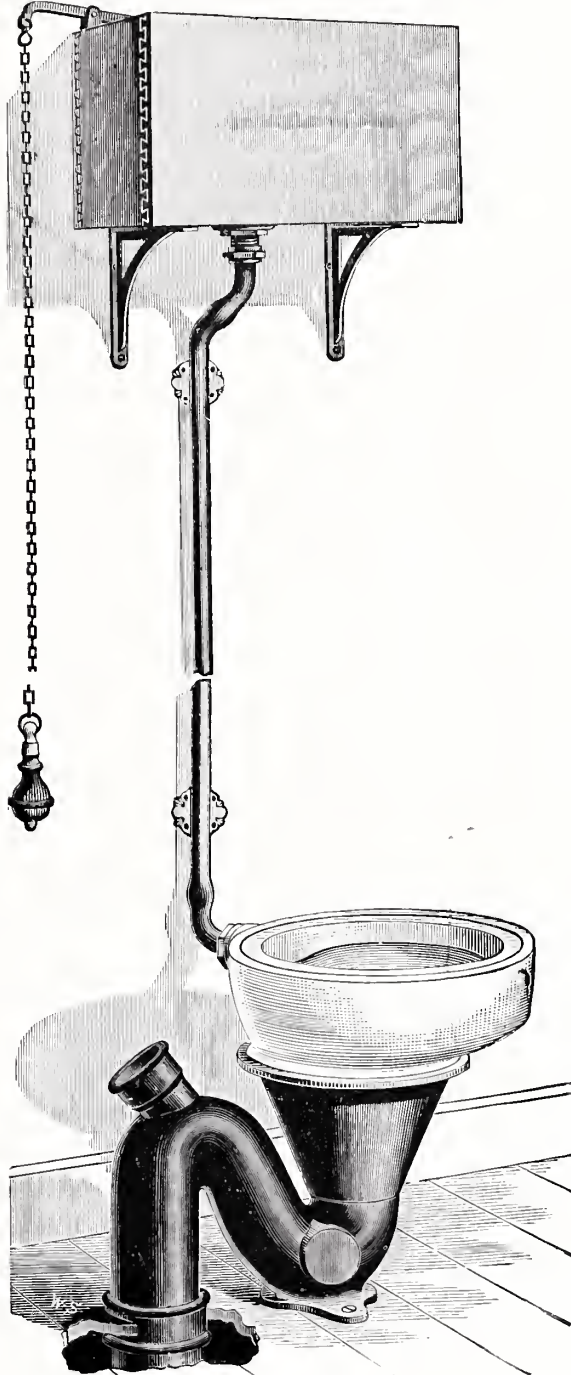


Fig. 1025.

Short, Oval, Earthen, Flushing Rim Hopper and Combined Iron Hopper Body and Vented Trap, with No. 1 Plain Cistern, Japanned Brackets, Nickel Plated Chain and Pull . . . \$16.25

WATER CLOSET COMBINATIONS.  
CONTINUED.

PLAIN FRONT OUTLET PEDESTAL WASHOUT CLOSET.

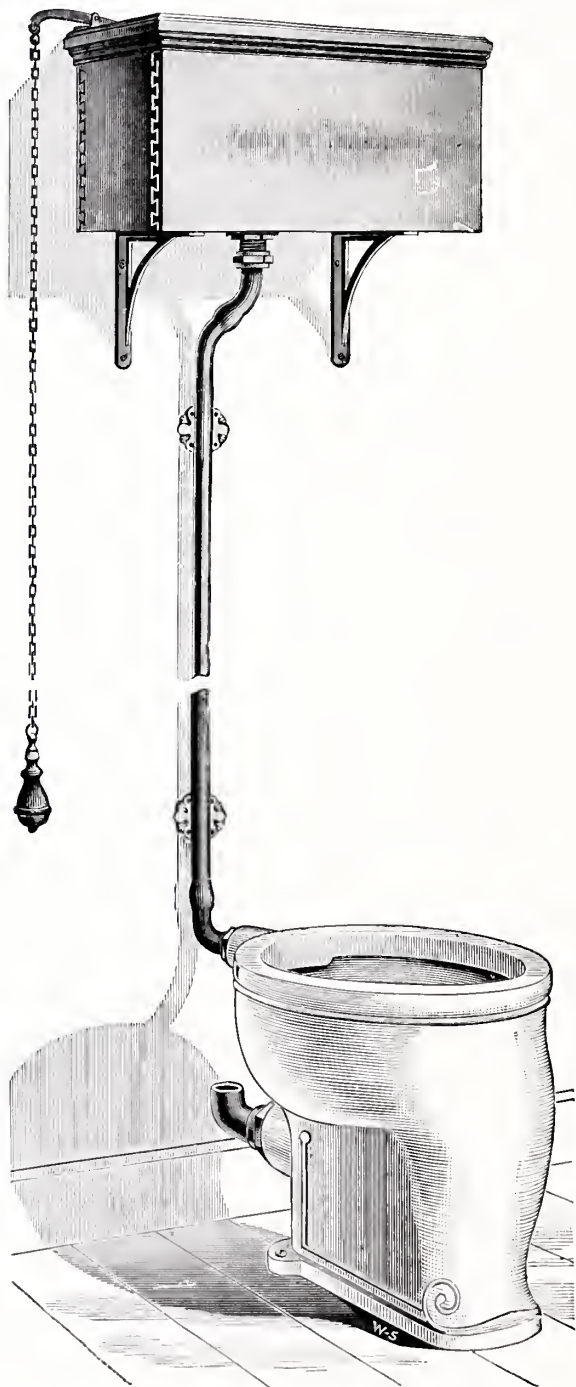


Fig. 1026.

Plain Front Outlet Pedestal Closet, with No. 1 Cistern, in either Cherry or Oak Finish,  
Japanned Brackets, Nickel Plated Chain and Pull..... \$29.75

# WATER CLOSET COMBINATIONS.

CONTINUED.

FRONT OUTLET WASHOUT CLOSET.

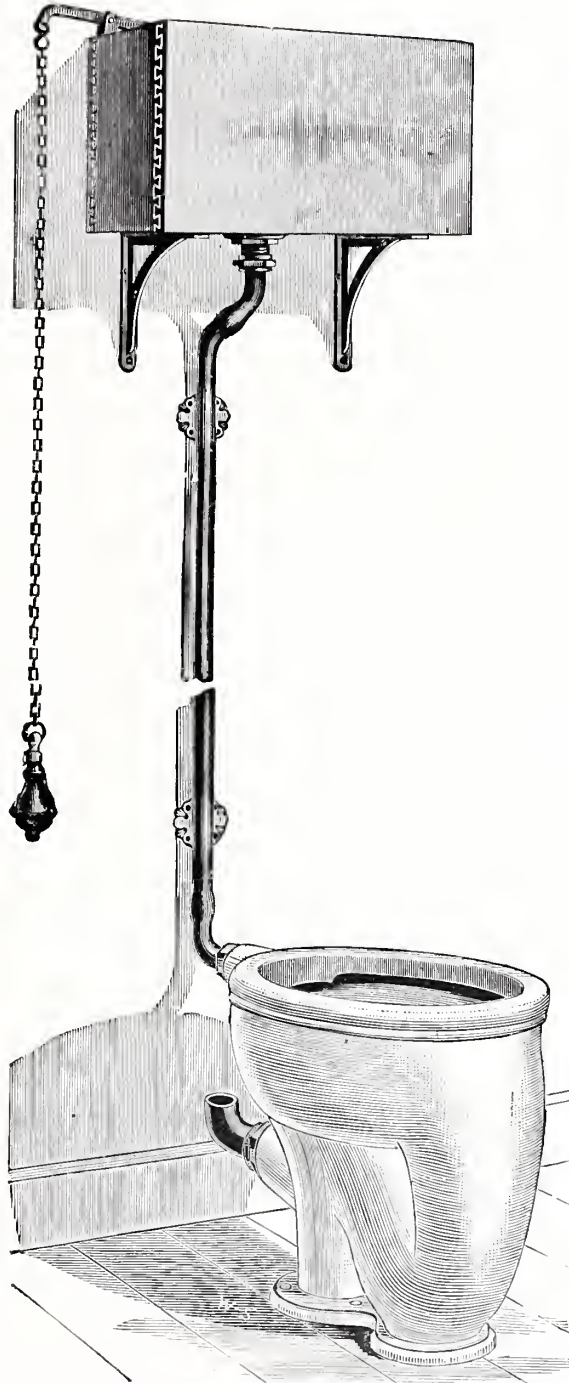


Fig. 1027.

Front Outlet Washout Closet, with No. 1 Plain Siphon Cistern, Japanned Brackets, Nickel Plated Chain and Pull. . . . .

\$25.50



WATER CLOSET COMBINATIONS.  
CONTINUED.

PLAIN BACK OUTLET WASHOUT CLOSET.



Fig. 1028.

Plain Back Outlet Closet, with No. 1 Siphon Cistern, Japanned Brackets, Nickel Plated Chain and Pull . . . . . \$28.75

# WATER CLOSET COMBINATIONS—CONTINUED.

"NEWTON" EMBOSSED HOPPER WATER CLOSET.

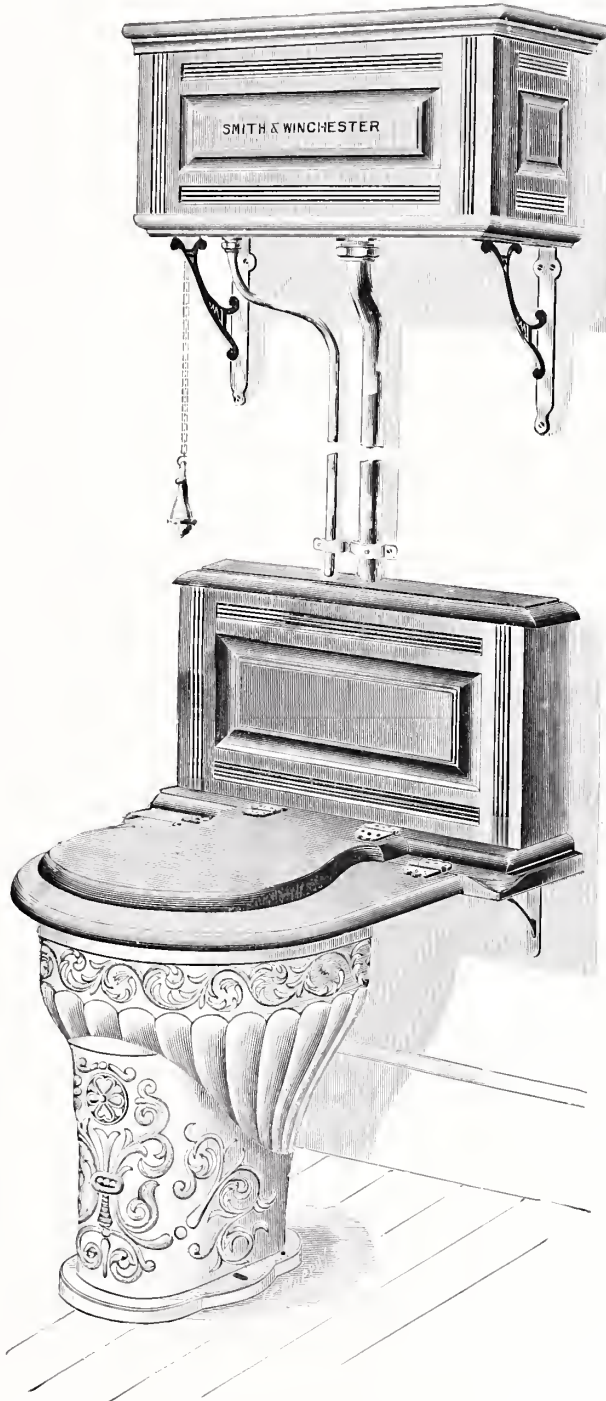


Fig. 1029.

With No. 1 Paneled, Copper-Lined Cistern, Siphon Valve, No. 6 Seat, Nickel Plated Supply and Flush Pipes and Expansion Elbow, Nickel Plated Brackets for Seat and Cistern, Chain and Pull, Brass Floor Flange and Screws, Cistern and Seat finished in either Ash, Oak or Cherry . . . . .

If without Flush and Supply Pipes, deduct \$12.00.

\$45.00

# WATER CLOSET COMBINATIONS.

CONTINUED.

"CUSHING" EMBOSSED WASHOUT CLOSET.

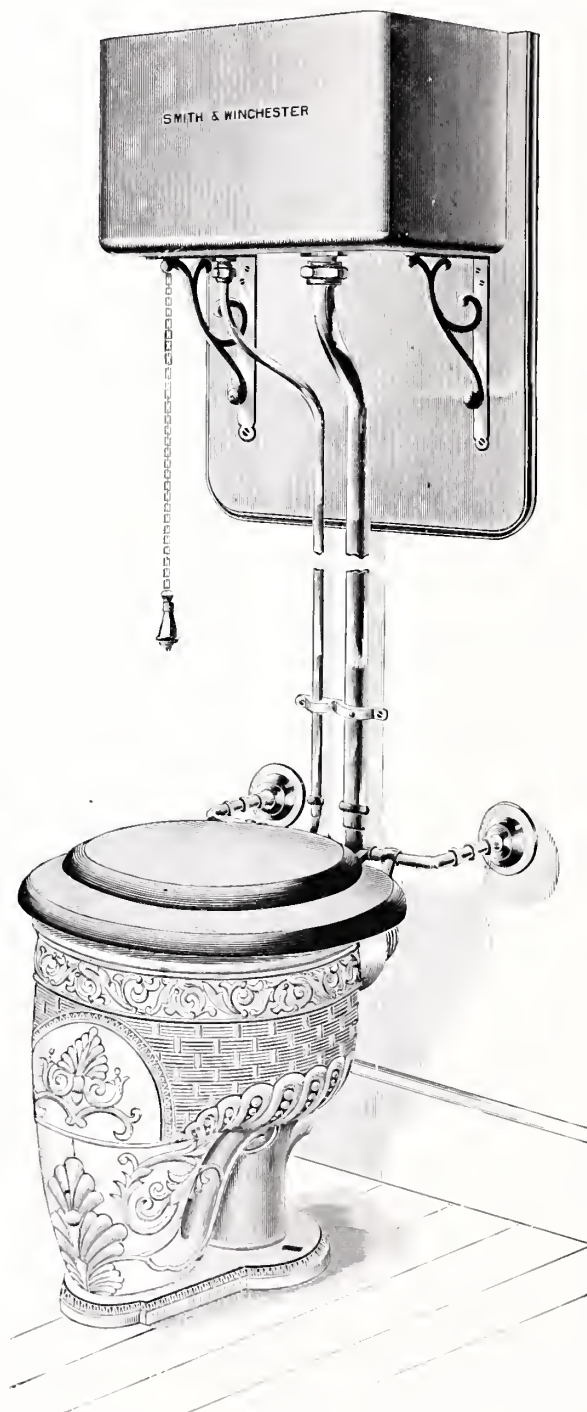


Fig. 1030.

With No. 1 Round Corner, Copper-Lined, Finished Cistern, Siphon Valve, Royal Hinge Bracket Seat, No. 11 Tank Board, Nickel Plated Flush and Supply Pipes and Expansion Elbow, Nickel Plated Brackets, Chain and Pull, Brass Floor Flange and Screws, Cistern, Seat and Tank Board finished in either Ash, Oak or Cherry . . . . .	\$55.00
If without Flush and Supply Pipe, deduct . . . . .	12.00
"    Back Board, deduct . . . . .	3.00

# WATER CLOSET COMBINATIONS.

## CONTINUED.

"DUDLEY" EMBOSSED PEDESTAL WASHOUT CLOSET.



Fig. 1031.

With No. 1 Round Corner, Finished, Copper-Lined Cistern, Siphon Valve, Ideal Hinge Bracket Seat, Nickel Plated Supply and Flush Pipes and Expansion Elbow, Nickel Plated Brackets, Chain and Pull, Brass Floor Flange and Screws, Cistern and Seat finished in either Ash, Oak or Cherry . . . . .

\$55.00

If without Flush and Supply Pipes, deduct . . . . .

12.00



WATER CLOSET COMBINATIONS.  
CONTINUED.

"DORCHESTER" EMBOSSED PEDESTAL WASHOUT CLOSET.

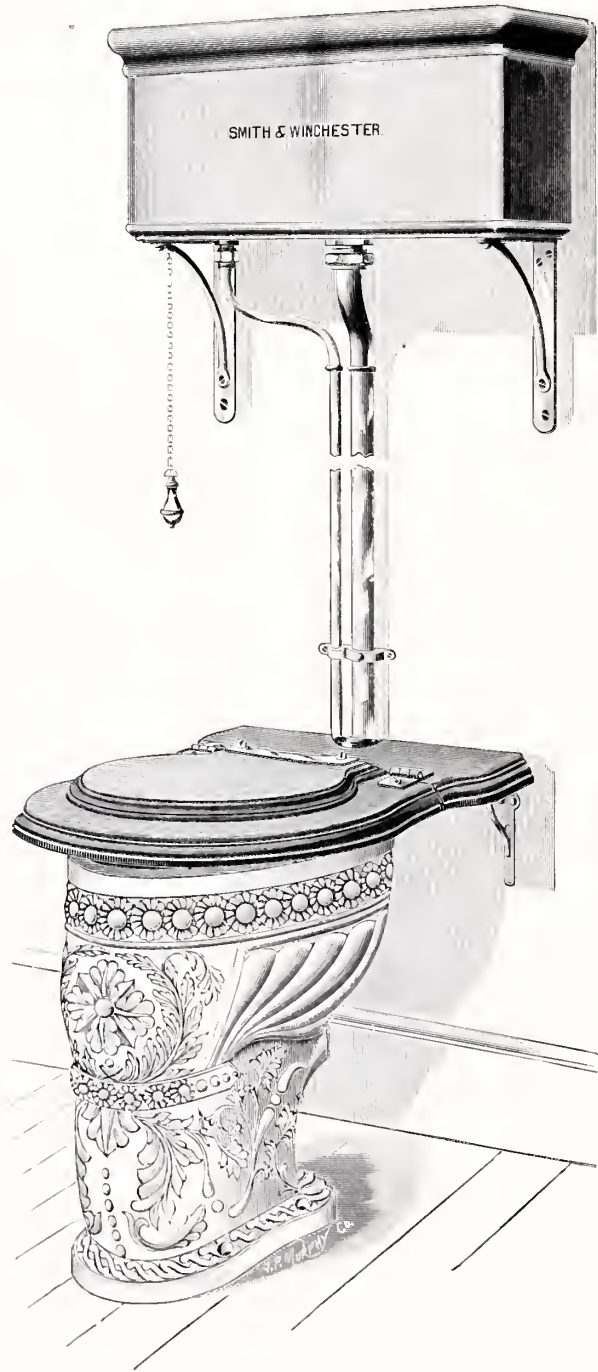


Fig. 1032.

With No. 1 Round Corner, Top Moulding Tank, Siphon Valve, No. 244 Seat, Nickel Plated Supply and Flush Pipes and Expansion Elbow, Nickel Plated Brackets for Seat and Cistern, Chain and Pull, Brass Floor Flange and Screws, Cistern and Seat finished in either Ash, Oak or Cherry . . . . . \$58.00  
If without Flush and Supply Pipes, deduct . . . . . 12.00

# PATENT DUPLEX SANITARY SAFETY FLANGE.

As used on our "Berkshire" and S. & W. Washout Closets and our Charlesgate Siphon Jet, as illustrated and described on pages 365 to 373 inclusive.

FLOOR PLATE.

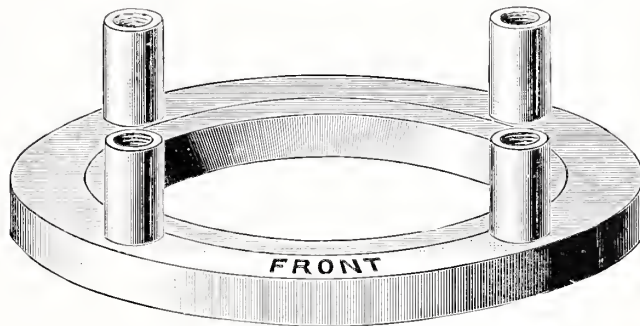


Fig. 1033.

The first good feature in any all Earthenware Water Closet begins at the outlet, or where it joins to the Soil and Sewer Pipe. This is really the important joint of the plumbing system in the house, as after the pipes are tested there is no way of telling without a scientific test if it is tight, and those that are tight in the beginning often leak in a year or two, as the putty, rubber or other perishable stuff they are made of soon rots; therefore the very best means should be employed to make this joint secure and lasting, and the Duplex Flange is unquestionably the right fitting for the purpose.

This Floor Plate is made in two parts, the outer being secured to the inner ring so as to afford a chance to straighten the closet before the bolts are tightened.

There is no difficulty in setting a water closet with the Duplex Safety Flange. Simply level the Plate before you solder it to the soil pipe; the top of the closet is then sure to be level, as the flange C, shown on the next page, is securely cemented in the recessed earthen flange B, level with the top of the closet and not with the bottom of it.

# PATENT DUPLEX SANITARY SAFETY FLANGE.

SHOWING THE CLOSET BEFORE IT IS SET.

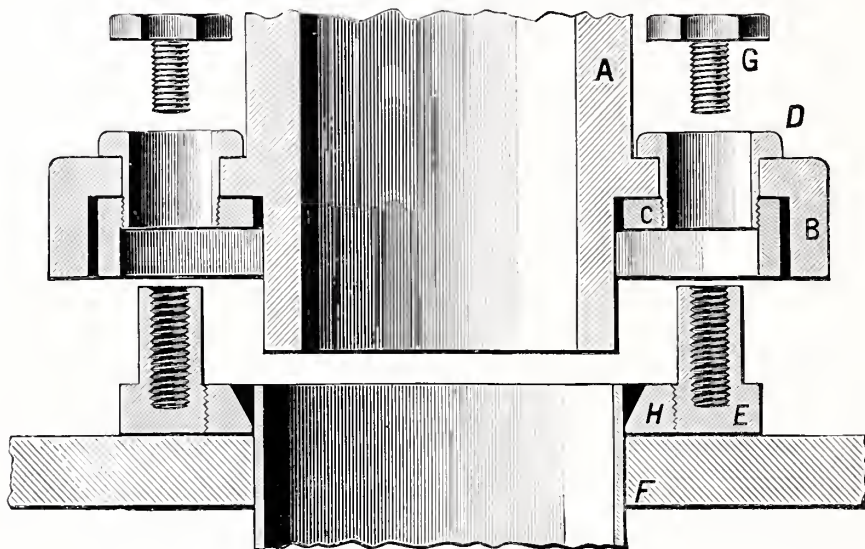


Fig. 1034.

SHOWING THE CLOSET AFTER IT IS SET.

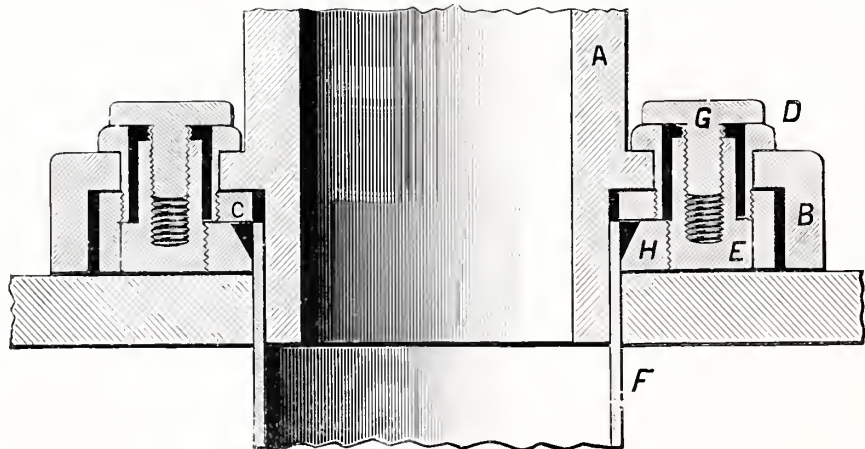


Fig. 1035.

Please read this page carefully and you will become convinced that the Duplex Safety Flange is the safest, most convenient and most sanitary method of securing an all Earthenware Water Closet to the floor and soil pipe.

A shows the discharge end of the closet, B shows the recessed earthenware flange, C shows a metal flange fitted in the earthenware Flange B and secured permanently therein with cement and the flanged Ferrules D, which are screwed to the Flange C with a left-hand thread, thereby preventing them from turning in any further when the Bolts G are being screwed to the floor plate, and as the lower end of the Ferrules D are even with the under side of the Metal Flange C and rest upon the Floor Plate H, E, it will be seen that there is no liability of breaking the earthenware Flange B in screwing Bolts G in, as any pressure with a tool on the Bolts does not effect the earthenware.

There is no question about this making an absolutely tight and lasting joint, as the Bolts G and upright sockets are made strong, and the flat surfaces of the Flange C and Floor Plate H, E, are fitted true to each other, and when bolted together as Fig. 1035 shows, with a layer of white or red lead between, it would be quite impossible for sewer gas to escape under any conditions; and besides this excellent sanitary feature and the safety it gives the plumber, it is the most convenient, as the upright sockets on the outer Ring E guide the closet to its place, and the thread between H and E allows the closet to be turned either way after the inner Ring H is soldered to the Soil Pipe F so that the closet can be straightened.

# SPECIAL WASHOUT CLOSETS.

"BERKSHIRE" EMBOSSED OPEN TRAP FRONT OUTLET CLOSET.



IVORY. Fig. 1036.

The "Berkshire" Embossed Open Trap Front Outlet Closet, fitted with our Patent Duplex  
Sanitary Safety Flange . . . . . \$27.50

For description of Duplex Flange, see pages 363 and 364.



SPECIAL WASHOUT CLOSETS.  
CONTINUED.

“S. & W.” EMBOSSED PEDESTAL FRONT OUTLET CLOSET.



IVORY. Fig. 1037.

The “S. & W.” Embossed Pedestal Front Outlet Closet, fitted with our Patent Duplex  
Sanitary Safety Flange . . . . . \$30.00

For description of Duplex Flange, see pages 363 and 364.

## SPECIAL CLOSET COMBINATIONS.

"S. & W." EMBOSSED PEDESTAL WASHOUT CLOSET, FITTED WITH OUR DUPLEX  
SANITARY SAFETY FLANGE.

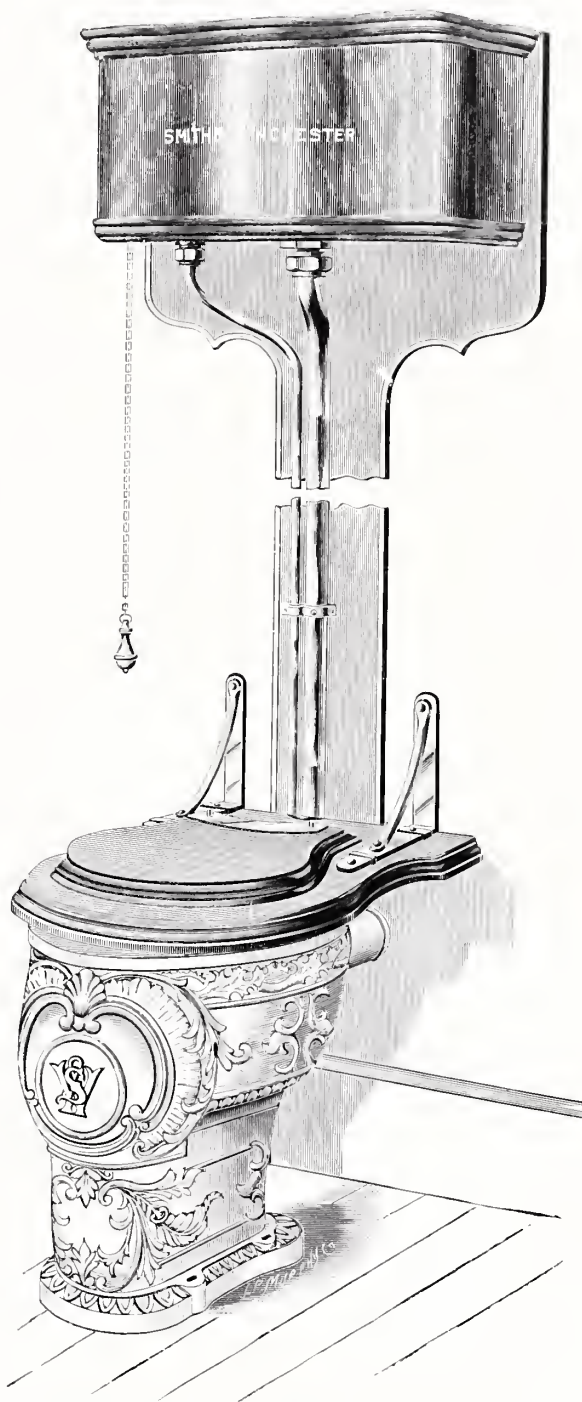


Fig. 1038.

With No. 1 Serpentine, Copper-Lined Cistern, Siphon Valve, No. 221 Seat, No. 1 Pipe Board, Nickel Plated Flush and Supply Pipes and Expansion Elbow, Chain and Pull, Cistern, Seat and Pipe Board finished in either Ash, Oak or Cherry . . . . .	\$75.00
If without Flush and Supply Pipes, deduct . . . . .	12.00
If with No. 1 Panel Tank and No. 6 Seat, deduct . . . . .	7.50

# SPECIAL CLOSET COMBINATIONS.

CONTINUED.

“BERKSHIRE” EMBOSSED WASHOUT CLOSET, FITTED WITH OUR DUPLEX SANITARY SAFETY FLANGE.

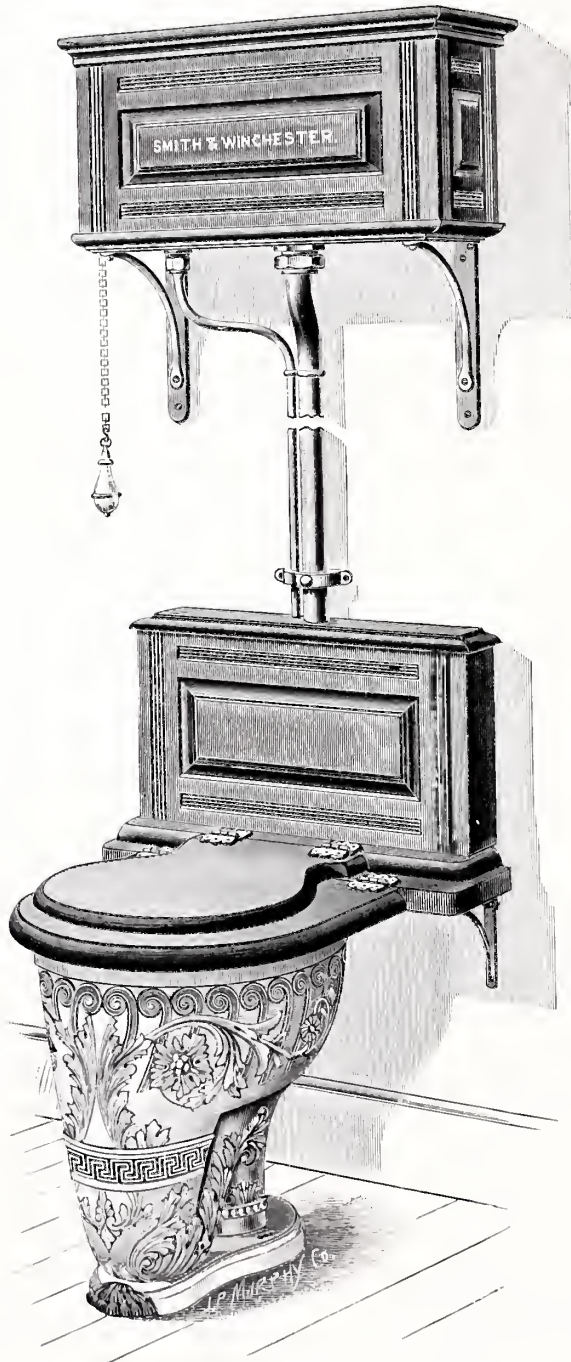


Fig. 1039.

With No. 1 Paneled, Copper-Lined Cistern, Siphon Valve, No. 6 Seat, Nickel Plated Supply and Flush Pipes and Expansion Elbow, Nickel Plated Brackets for Seat and Cistern, Chain and Pull, Cistern and Seat finished in either Ash, Oak or Cherry . . . . . \$65.00  
If without Flush and Supply Pipes, deduct . . . . . 12.00

# CHARLESGATE SIPHON CLOSET.

COMBINATION "A."

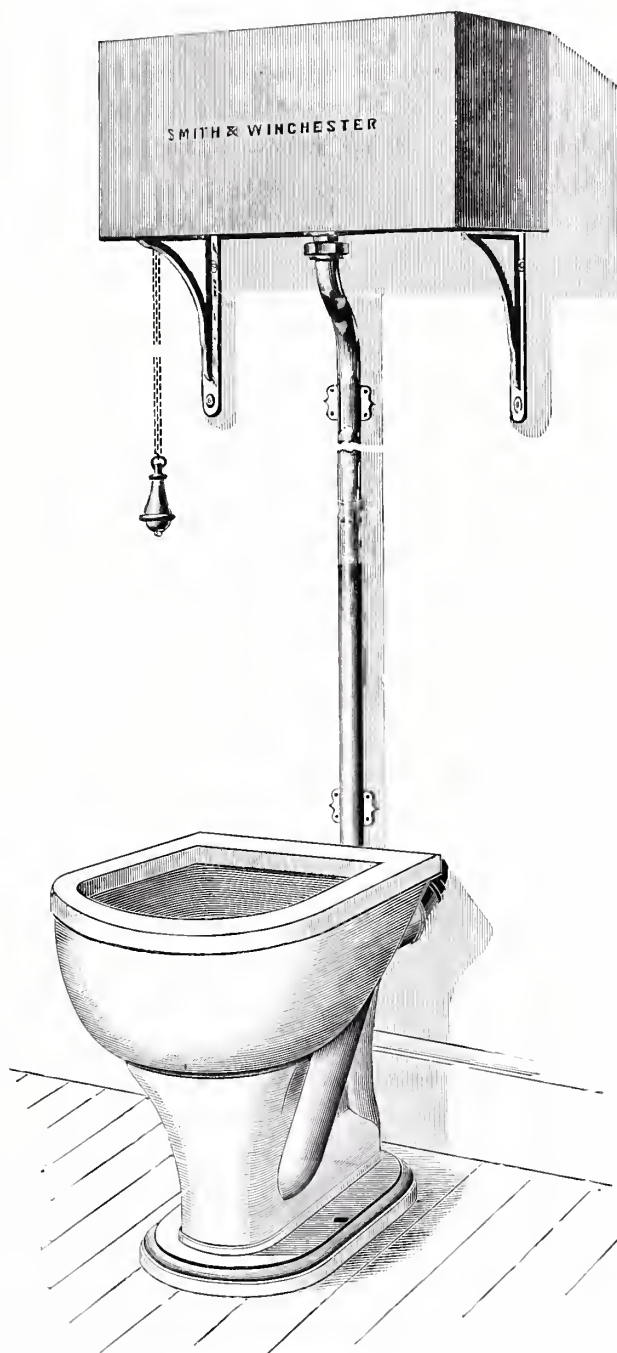


Fig. 1040.

Consists of Plain "Charlesgate" Siphon Closet fitted with Patent "Duplex" Sanitary Safety Flange, Plain Copper-Lined Cistern with Noiseless Slow-Closing Valve, Japanned Brackets, Chain and Pull . . . . . \$40.00



# CHARLESGATE SIPHON CLOSET—CONTINUED.

COMBINATION "B."



Fig. 1041.

Consists of Plain "Charlesgate" Siphon Closet fitted with Patent "Duplex" Sanitary Safety Flange, No. 241 Seat and Round-Corner Moulded Top Tank, Noiseless Slow-Closing Valve, Bottom Supply, Heavy Pressure Ball Cock, Nickel Plated Flush and Supply Pipes and Expansion Elbow, Nickel Plated Brackets, Chain and Pull . . . . . \$65.00  
 If without Flush and Supply Pipes, deduct from List . . . . . 12.00

Seat and Tank finished in either Ash, Oak or Cherry.

# CHARLESGATE SIPHON CLOSET—CONTINUED.

COMBINATION "C."

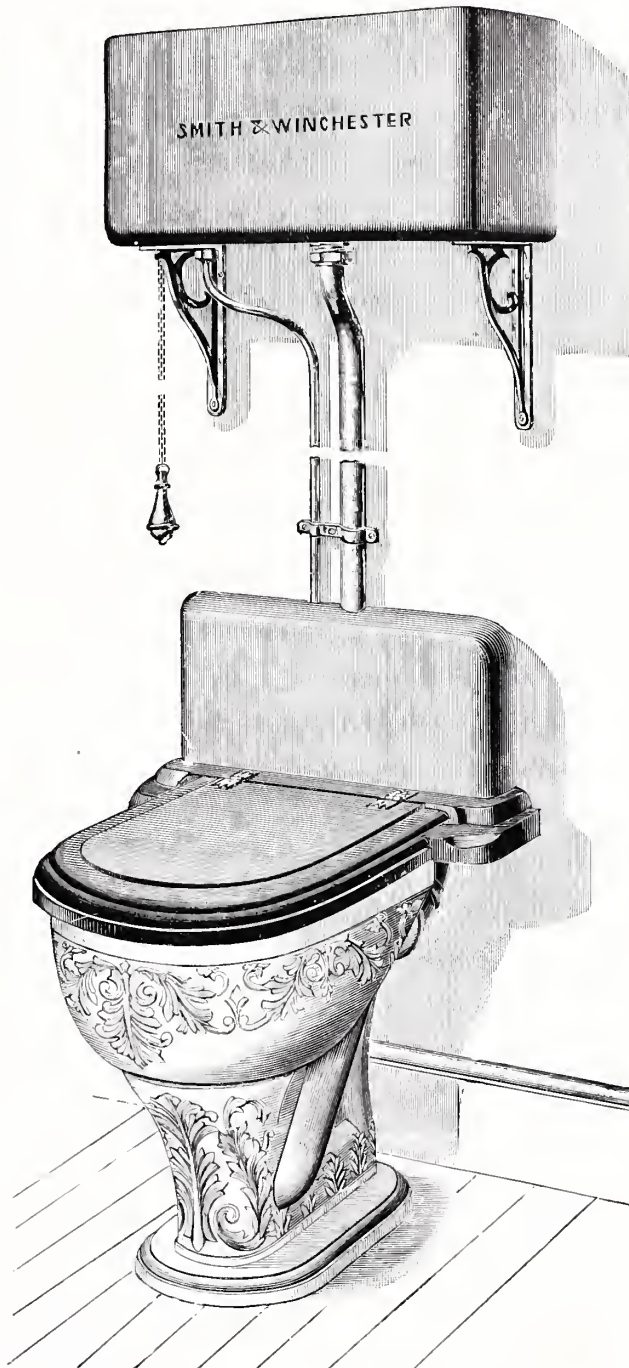


Fig. 1042.

Consists of Embossed "Charlesgate" Siphon Closet fitted with Patent "Duplex" Sanitary Safety Flange, Round-Cornered Seat and Tank, with Noiseless Slow-Closing Valve, Bottom Supply, Heavy Pressure Ball Cock, Nickel Plated Flush and Supply Pipes and Expansion Elbow, Nickel Plated Brackets, Chain and Pull . . . . . \$62.00  
If without Flush and Supply Pipes, deduct from List. . . . . 12.00

Seats and Tanks finished in either Ash, Oak or Cherry.

CHARLESGATE SIPHON CLOSET—CONTINUED.

COMBINATION "D."

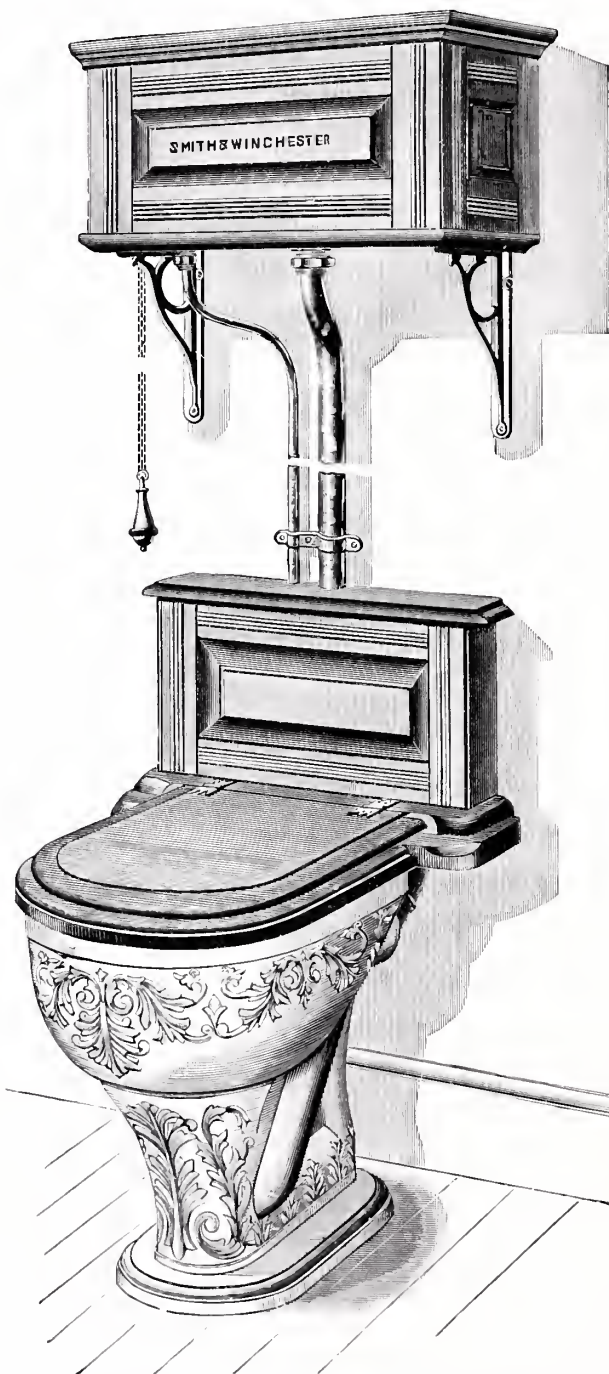


Fig. 1043.

Consists of Embossed "Charlesgate" Siphon Closet fitted with Patent "Duplex" Sanitary Safety Flange, Paneled Seat and Tank with Noiseless Slow-Closing Valve, Bottom Supply, Heavy Pressure Ball Cock, Nickel Plated Flush and Supply Pipes and Expansion Elbow, Nickel Plated Brackets, Chain and Pull. . . . . \$65.00  
If without Flush and Supply Pipes, deduct from List . . . . . 12.00  
Seats and Tanks finished in Ash, Oak or Cherry.



## CHARLESGATE SIPHON CLOSET—CONTINUED.

COMBINATION "E."

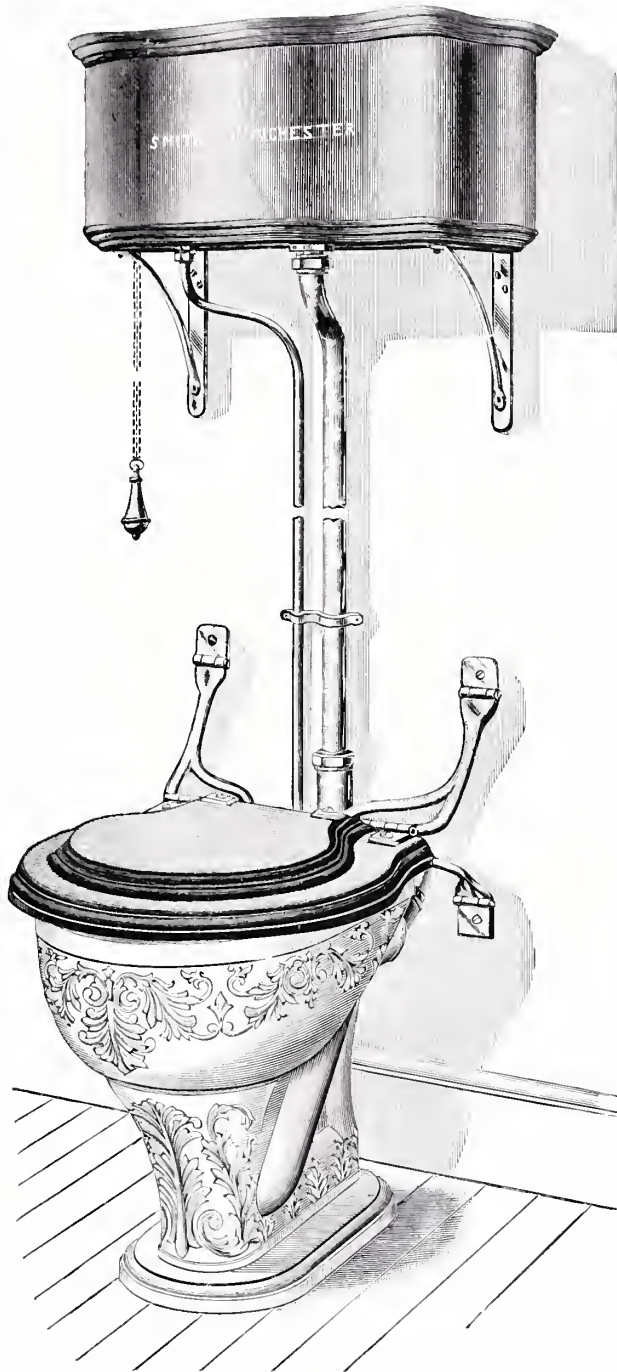


Fig. 1044.

Consists of Embossed "Charlesgate" Siphon Closet fitted with Patent "Duplex" Sanitary Safety Flange, Ideal Hinge Bracket Seat, Serpentine Tank with Noiseless Slow-Closing Valve, Bottom Supply, Heavy Pressure Ball Cock, Nickel Plated Flush and Supply Pipes and Expansion Elbow, Nickel Plated Brackets, Chain and Pull. . . . . \$75.00  
 If without Flush and Supply Pipes, deduct from List . . . . . 12.00  
 Seats and Tanks finished in either Ash, Oak or Cherry.



# CLOSET SEATS.

FOR OVAL AND ROUND PEDESTAL CLOSETS.

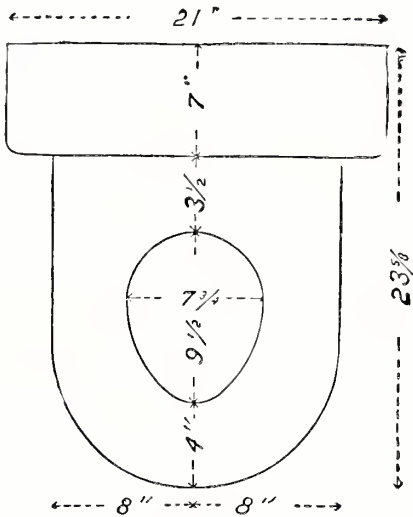


Fig. 1045.

The above diagram gives all measurements required to properly set Pedestal Closets to fit Ideal Seats.

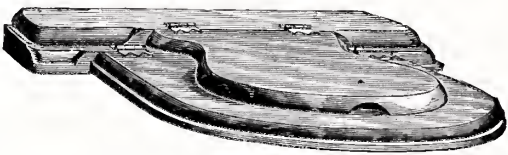


Fig. 1046.

Ash; Dark or Light Cherry; Plain Oak, Finished Antique or Natural.

Fig. 1046.	No. 3 Seat, 1 1/4-inch thick	...	\$5.00
1046.	" 13 " 1 " " "	...	4.75

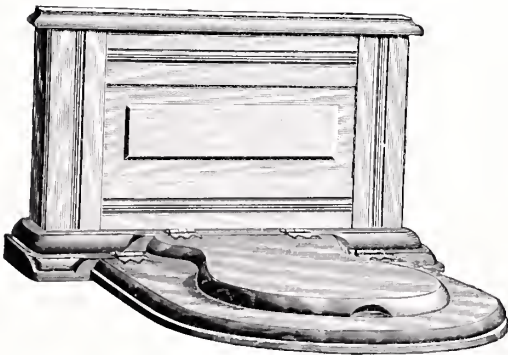


Fig. 1047.

Ash; Dark or Light Cherry; Plain Oak, Finished Antique or Natural.

Fig. 1047.	No. 6 Seat, 1 1/4-inch thick	...	\$6.50
1047.	" 16 " 1 " " "	...	6.25

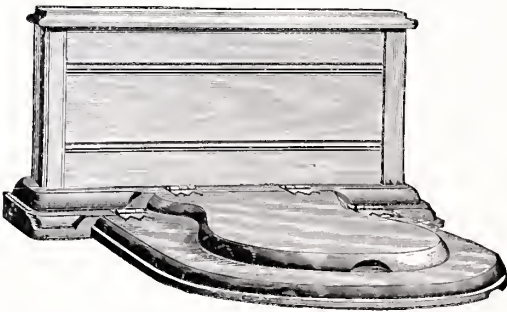


Fig. 1048.

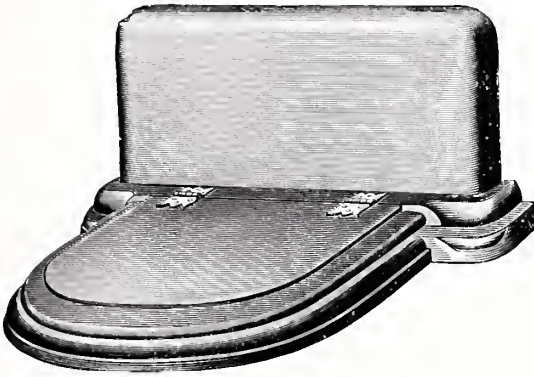
Ash; Dark or Light Cherry; Plain Oak, Finished Antique or Natural.

Fig. 1048.	No. 7 Seat, 1 1/4-inch thick	...	\$6.00
1048.	" 17 " 1 " " "	...	5.75

For Cherry, Walnut or Quartered Oak, add to List : No. 3, \$1.75; Nos. 6 and 7, \$2.25.

# CLOSET SEATS—CONTINUED.

FOR OVAL AND ROUND PEDESTAL CLOSETS.



Copyrighted 1893.

Fig. 1049.

Ash; Dark or Light Cherry; Plain Oak, Finished Antique or Natural.

Fig. 1049. No. 47 Seat, 1½-inch thick. . . \$7.00  
 " 1049. " 57 " 1 " " . . 6.75

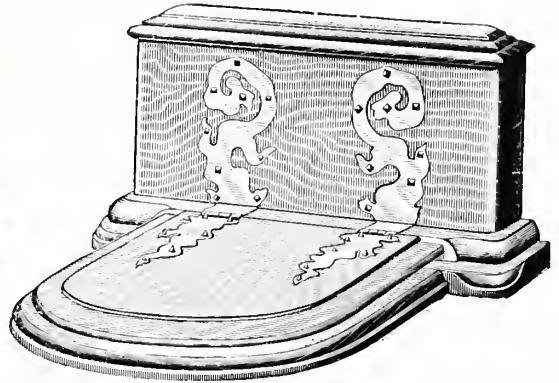
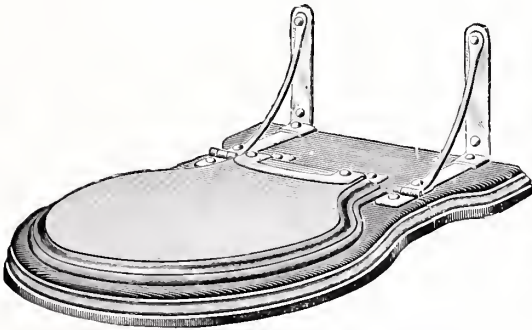


Fig. 1050.

Ash; Dark or Light Cherry; Plain Oak, Finished Antique or Natural.

Fig. 1050. No. 44 Seat, 1½-inch thick. . . \$9.00  
 " 1050. " 54 " 1 " " . . 8.75

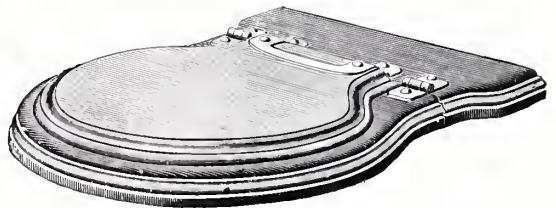


Copyrighted 1893.

Fig. 1051.

Ash; Dark or Light Cherry; Plain Oak, Finished Antique or Natural.

Fig. 1051. No. 221 Seat, 1½-inch thick . . \$13.50



Copyrighted 1893.

Fig. 1052.

Ash; Dark or Light Cherry; Plain Oak, Finished Antique or Natural.

Fig. 1052. No. 241 Seat, 1½-inch thick . . \$10.00

For Cherry, Walnut or Quartered Oak, add to List : Nos. 44 and 47, \$2.75 ; No. 221, \$1.75 ;  
 No. 241, \$1.75.

CLOSET SEATS — CONTINUED.

PEDESTAL CLOSETS.

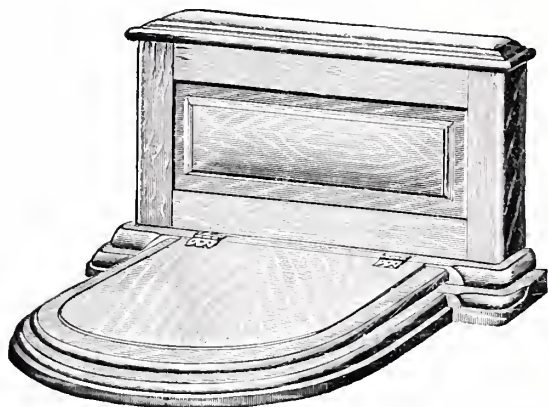


Fig. 1053.

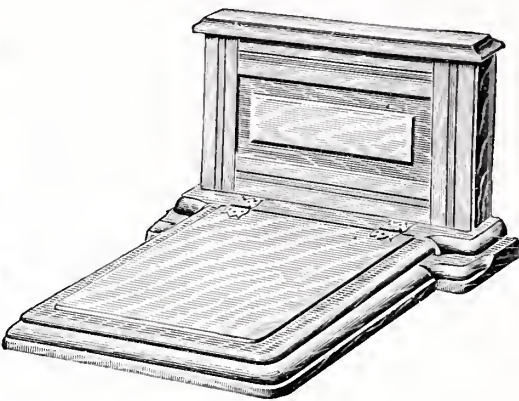


Fig. 1054.

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

Fig. 1053. No. 65 Seat, 1½-in. thick . . . \$7.00  
" 1053. " 75 " 1 " " . . . 6.75

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

Fig. 1054. No. 24 Seat, 1½-in. thick . . . \$7.50

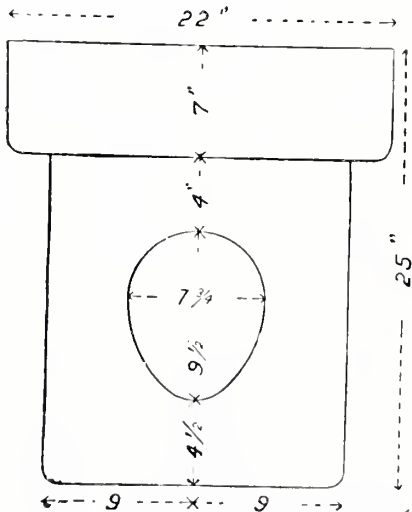


Fig. 1055.

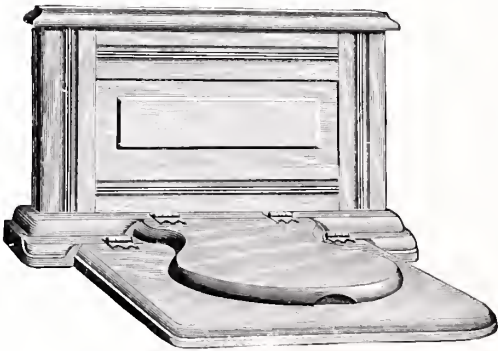


Fig. 1056.

The above diagram gives all measurements required to properly set Pedestal Closets to fit Ideal Seats.

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

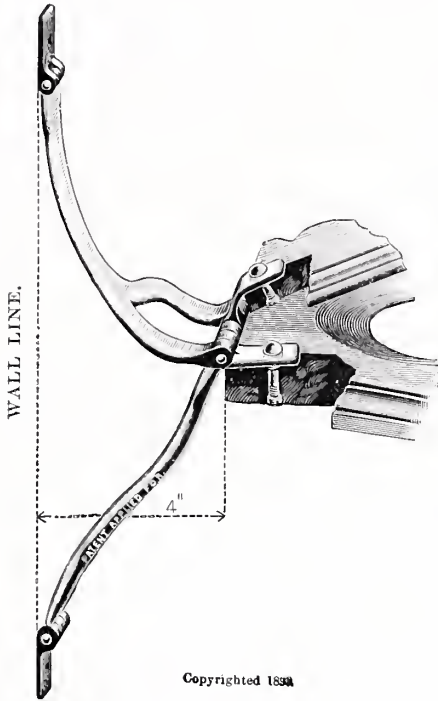
Fig. 1056. No. 26 Seat, 1½-in. thick . . . \$7.00

For Cherry, Walnut or Quartered Oak, add to List : No. 65, \$2.75 ; No. 24, \$2.75 ; No. 26, \$2.50.



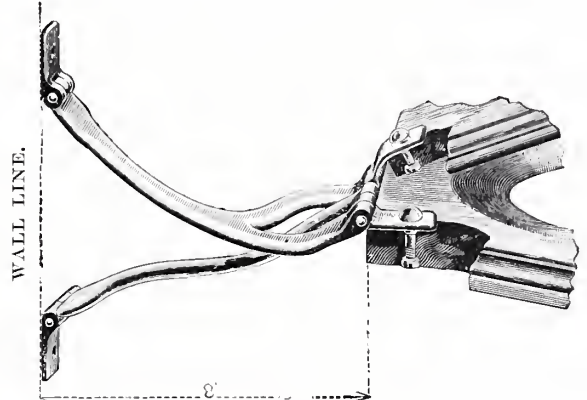
# CLOSET SEATS—CONTINUED.

WITH ADJUSTABLE BRACKET HINGE. FOR OVAL AND ROUND PEDESTAL CLOSETS.



Copyrighted 1893.

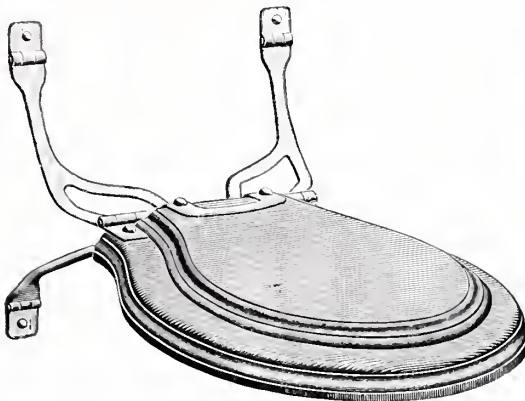
Fig. 1057.



Copyrighted 1893.

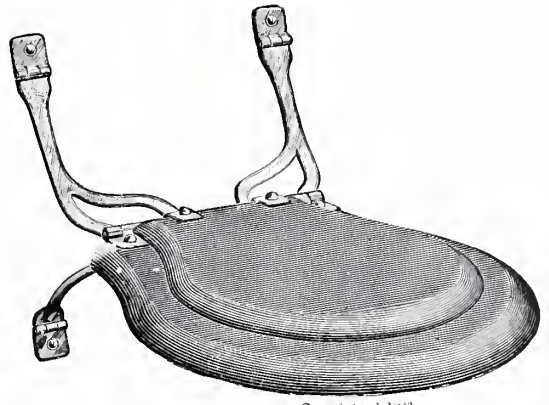
Fig. 1058.

By reference to diagram it will be seen that the bowl can be located as close as 4 inches or as distant as 8 inches from the wall, and the seat properly fitted to same by adjustment of the Bracket Hinge.



Copyrighted 1893.

Fig. 1059.



Copyrighted 1893.

Fig. 1060.

Ash; Dark or Light Cherry; Plain Oak, Finished  
Antique or Natural.

Fig. 1059. No. 261 Seat, 1½-in. thick (ad-  
justable hinge) . . . . . \$12.50

Cherry; Walnut; Quartered Oak, Finished  
Antique or Natural.

Fig. 1059. No. 261 Seat, 1½-in. thick (ad-  
justable hinge) . . . . . \$14.25

Ash; Dark or Light Cherry; Plain Oak, Finished  
Antique or Natural.

Fig. 1060. No. 272 Seat, 1½-in. thick (ad-  
justable hinge) . . . . . \$12.25

Cherry; Walnut; Quartered Oak, Finished  
Antique or Natural.

Fig. 1060. No. 272 Seat, 1½-in. thick (ad-  
justable hinge) . . . . . \$14.00

Solid Brass, Nickel Plated Hinges. Extra Finish. Order by Number. Packed Singly.



CLOSET SEATS—CONTINUED.

FOR PEDESTAL OR HOPPER CLOSETS.



Fig. 1061.

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

Fig. 1061.	No. 131 Seat, 1-inch thick . . . . .	\$4.00
" 1061.	" 1310 " 1 " with Self-Acting Attachment . . . . .	5.00

Cherry ; Walnut ; Quartered Oak, Finished Antique or Natural.

Fig. 1061.	No. 131 Seat, 1-inch thick . . . . .	\$5.50
" 1061.	" 1310 " 1 " with Self-Acting Attachment . . . . .	6.50

The above prices do not include Legs.  
Order by Number. Packed Singly.



Fig. 1062.

Fig. 1062.	No. 1 Leg, Painted . . . . .	Each.	\$0.40
" 1062.	" 1 " Bronzed . . . . .	"	.40
" 1062.	" 1 " Galvanized . . . . .	"	.50
" 1062.	" 2 " (Adjustable) Painted . . . . .	"	.50
" 1062.	" 2 " " Bronzed . . . . .	"	.50
" 1062.	" 2 " " Galvanized . . . . .	"	.60

No. 1 Leg, 17 inches long.

No. 2 Leg, adjustable from 15½ to 17 inches by loosening bolt used for that purpose.

## CLOSET SEATS—CONTINUED.

### FOR PEDESTAL OR HOPPER CLOSETS.

Ash; Dark or Light Cherry; Plain Oak,  
Finished Antique or Natural.

Fig. 1063. No. 136 Seat, 1-in. thick . . \$7.50  
 " 1063. " 1360 " 1 " " with  
 Self-Acting Attachment . . . . 8.50

Cherry; Walnut; Quartered Oak, Finished  
Antique or Natural.

Fig. 1063. No. 130 Seat, 1-in. thick . . \$10.00  
 " 1063. " 1360 " 1 " " with  
 Self-Acting Attachment . . . . 11.00

The above prices do not include Legs.  
For price and style of Legs, see page 378.

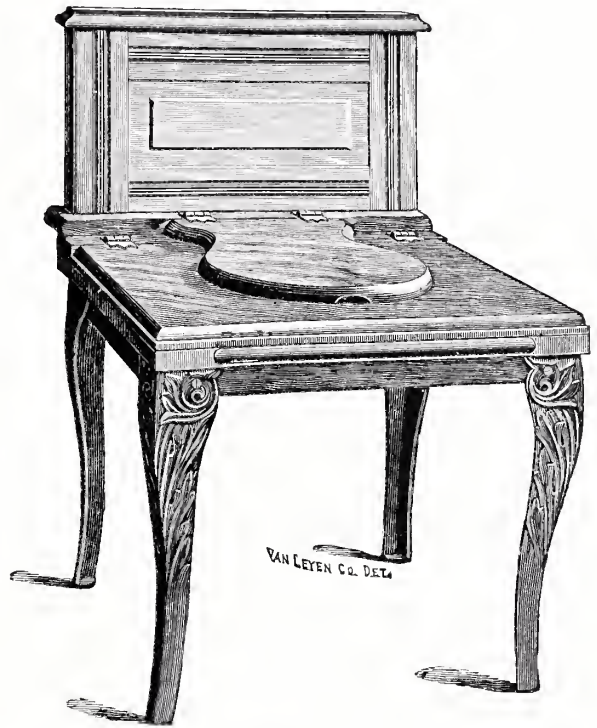


Fig. 1063.



Fig. 1064.

Ash; Dark or Light Cherry; Plain Oak,  
Finished Antique or Natural.

Fig. 1064. No. 133 Seat, 1-in. thick . . \$6.00  
 " 1064. " 1330 " 1 " " with  
 Self-Acting Attachment . . . . 7.00

Cherry; Walnut; Quartered Oak, Finished  
Antique or Natural.

Fig. 1064. No. 133 Seat, 1-in. thick . . \$8.00  
 " 1064. " 1330 " 1 " " with  
 Self-Acting Attachment . . . . 9.00

The above prices do not include Legs.  
For price and style of Legs, see page 378.

Packed Singly. Order by Number.

PIPE AND TANK BOARDS.

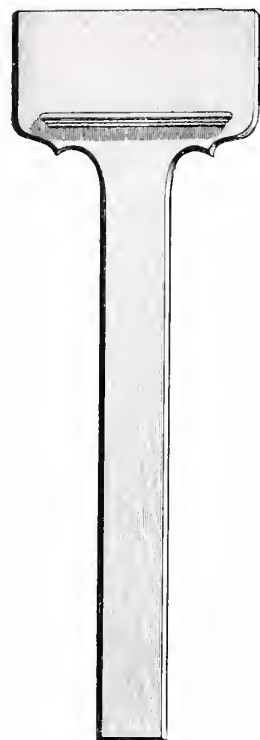
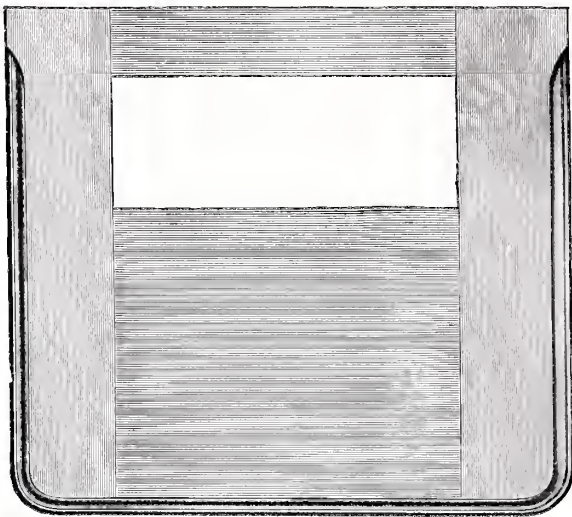


Fig. 1065.



Copyrighted 1883.

Fig. 1066.

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

Fig. 1065.	No. 1, for Tank	8 x 17 x 10 inches deep	.....	\$3.75
" 1065.	" 2, "	9 x 20 x 10 "	.....	4.00
" 1065.	" 3, "	11 x 23 x 10 "	.....	4.25

Cherry ; Walnut ; Quartered Oak, Finished Antique or Natural.

Fig. 1065.	No. 1, for Tank	8 x 17 x 10 inches deep	.....	\$5.00
" 1065.	" 2, "	9 x 20 x 10 "	.....	5.25
" 1065.	" 3, "	11 x 23 x 10 "	.....	5.50

No Brackets required.

Each Board is provided with two Castings for fastening Tank to the Board.

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

Fig. 1066.	No. 11, for Tank	8 x 17 x 10 inch	.....	\$2.50
" 1066.	" 12, "	9 x 20 x 10 "	.....	2.75
" 1066.	" 13, "	11 x 23 x 10 "	.....	3.00

Cherry ; Walnut ; Quartered Oak, Finished Antique or Natural.

Fig. 1066.	No. 11, for Tank	8 x 17 x 10 inch	.....	\$3.50
" 1066.	" 12, "	9 x 20 x 10 "	.....	3.75
" 1066.	" 13, "	11 x 23 x 10 "	.....	4.00

Order by Number. Packed Singly.

# FLUSH AND SUPPLY PIPE, STRAPS AND ELBOWS.

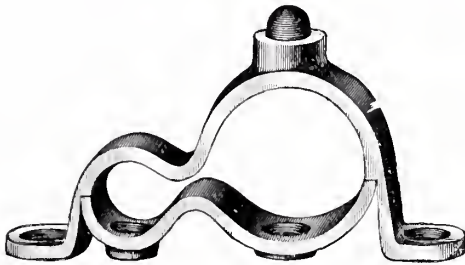


Fig. 1067.

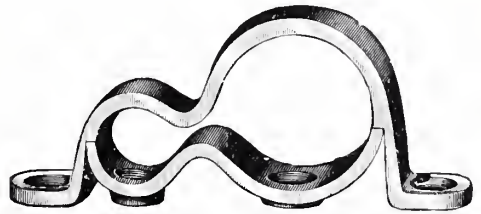


Fig. 1068.

Figs. 1067, 1068.	1 1/4 in.	Double Straps for Flush and Supply Pipes, Nickel Plated, per set . . .	\$0.90
" 1067, 1068.	1 1/4 "	" " " " " " Brass Finished, " . . .	.80
" 1067, 1068.	1 1/2 "	" " " " " " Nickel Plated, " . . .	1.00
" 1067, 1068.	1 1/2 "	" " " " " " Brass Finished, " . . .	.90

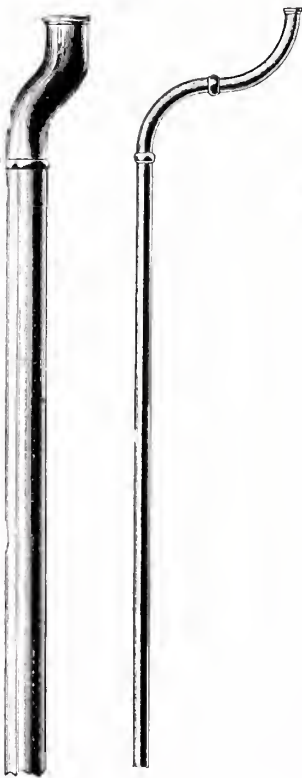


Fig. 1072. Fig. 1073.

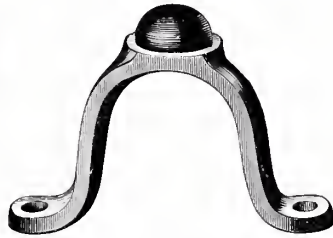


Fig. 1069.



Fig. 1070.

Figs. 1069, 1070.	1 1/4 inch	Single Straps for Flush Pipe only, Nickel Plated, per set . . . . .	\$0.75
" 1069, 1070.	1 1/4 inch	Single Straps for Flush Pipe only, Brass Finished, per set . . . . .	.65
" 1069, 1070.	1 1/2 inch	Single Straps for Flush Pipe only, Nickel Plated, per set . . . . .	.85
" 1069, 1070.	1 1/2 inch	Single Straps for Flush Pipe only, Brass Finished, per set . . . . .	.75

## ELBOWS.

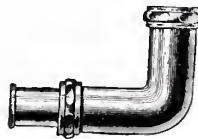


Fig. 1071.

Fig. 1071.	1 1/2 inch	Elbow, Nickel Plated . . . . .	\$2.75
" 1071.	1 1/2 "	" " Brass Finished . . . . .	2.50
" 1071.	1 1/4 "	" " Nickel Plated . . . . .	2.50
" 1071.	1 1/4 "	" " Brass Finished . . . . .	2.25

Fig. 1072.	1 1/4 inch	Flush Pipe, 6 feet long . . . . .	Nickel Plated. \$5.00	Brass Finished. \$4.75
" 1072.	1 1/2 "	" " 6 " . . . . .	6.50	6.25
" 1073.	3/4 "	Supply Pipe, 7 " . . . . .	3.75	3.50

Order by Number. Specify finish, Nickel or Brass.



CLOSET TANKS.

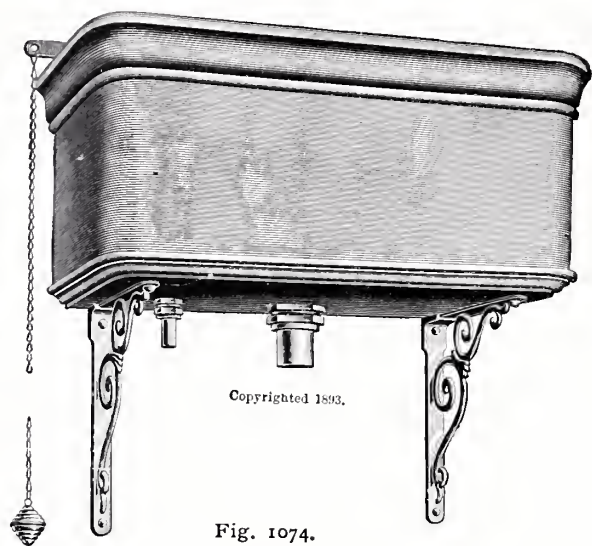


Fig. 1074.

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

No. 331.	CC Siphon, 1½ or 1¼ in. pipe . .	\$20.50
" 331.	C " 1¼ " . .	19.00
" 331.	D " 1¼ " . .	17.60
" 331.	E Pull 1¼ " . .	17.60
" 331.	F Jet Closet, 1¼ or 1½ " . .	19.60
" 332.	CC Siphon, 1¼ or 1½ " . .	21.75
" 332.	C " 1¼ " . .	20.25
" 332.	D " 1¼ " . .	18.85
" 332.	E Pull 1¼ " . .	18.85
" 332.	F Jet Closet, 1¼ or 1½ " . .	20.85
" 333.	CC Siphon, 1¼ or 1½ " . .	23.00
" 333.	C " 1¼ " . .	21.50
" 333.	D " 1¼ " . .	20.10
" 333.	E Pull 1¼ " . .	20.10
" 333.	F Jet Closet, 1¼ or 1½ " . .	22.10

All Tanks lined with Pure Copper (not tinned).  
Above prices include No. 4 (Solid Brass) Nickel Plated Bracket, Chain Pull and Valve Trimmings.  
These Tanks are made in Veneered Woods, and finished only in Extra Finish. Packed singly.

Fig. 1074.	No. 331.	Size . . . . .	8 x 17 x 10 inches.	Capacity, 5½ gallons.	8 x 10 Bracket.
" 1074.	No. 332.	Size . . . . .	9 x 20 x 10 "	7½ "	9 x 11 "
" 1074.	No. 333.	Size . . . . .	11 x 23 x 10 "	10½ "	10 x 12 "

Ash ; Dark or Light Cherry ; Plain Oak, Finished Antique or Natural.

No. 351.	CC Siphon, 1½ or 1¼ in. pipe . .	\$21.25
" 351.	C " 1¼ " . .	19.75
" 351.	D " 1¼ " . .	18.35
" 351.	E Pull 1¼ " . .	18.35
" 351.	F Jet Closet, 1¼ or 1½ " . .	20.35
" 352.	CC Siphon, 1¼ or 1½ " . .	22.50
" 352.	C " 1¼ " . .	21.00
" 352.	D " 1¼ " . .	19.60
" 352.	E Pull 1¼ " . .	19.60
" 352.	F Jet Closet, 1¼ or 1½ " . .	21.60
" 353.	CC Siphon, 1¼ or 1½ " . .	23.75
" 353.	C " 1¼ " . .	22.25
" 353.	D " 1¼ " . .	20.85
" 353.	E Pull 1¼ " . .	20.85
" 353.	F Jet Closet, 1¼ or 1½ " . .	22.85

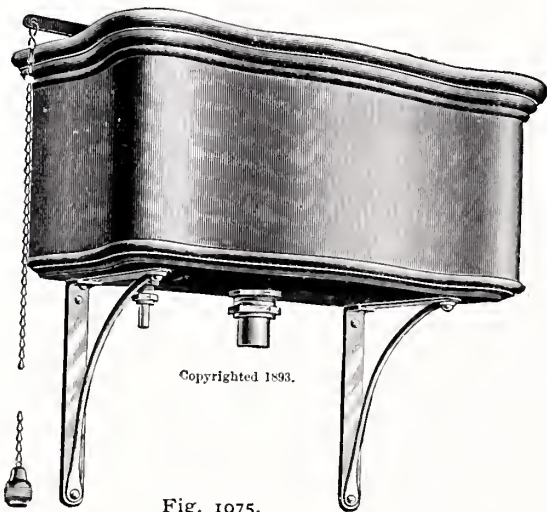


Fig. 1075.

All Tanks lined with Pure Copper (not tinned).  
Above prices include No. 6 (Solid Brass) Nickel Plated Bracket, Pull and Chain.  
These Tanks are made of Veneered Woods, and finished only in Extra Finish. Packed singly.

Fig. 1075.	No. 351.	Size . . . . .	8 x 17 x 10 inches.	Capacity, 5½ gallons.	8 x 10 Bracket.
" 1075.	No. 352.	Size . . . . .	9 x 20 x 10 "	7½ "	9 x 11 "
" 1075.	No. 353.	Size . . . . .	11 x 23 x 10 "	10½ "	10 x 12 "

For Cherry, Walnut or Quartered Oak, add to List : Nos. 331 and 351, \$1.50 ; Nos. 332 and 352, \$1.75 ; Nos. 333 and 353, \$2.00.

## CLOSET TANKS — CONTINUED.

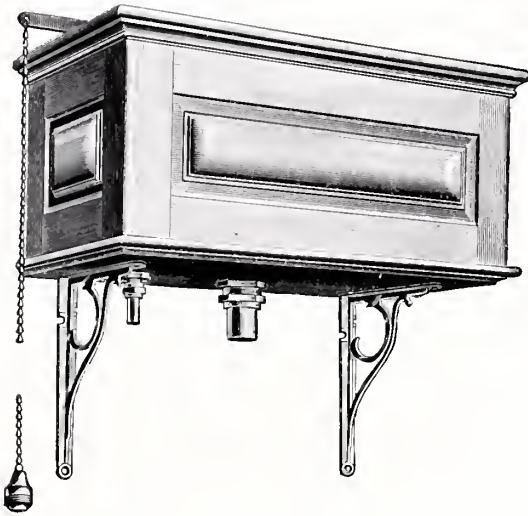


Fig. 1076.

Ash ; Dark or Light Cherry ; Plain Oak, Finished  
Antique or Natural.

No. 231.	CC Siphon, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe . .	\$15.40
" 231.	C " 1 $\frac{1}{4}$ " " . .	13.90
" 231.	D " 1 $\frac{1}{4}$ " " . .	12.50
" 231.	E Pull 1 $\frac{1}{4}$ " " . .	12.50
" 231.	F Jet Closet, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe	14.50
" 232.	CC Siphon, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe . .	16.45
" 232.	C " 1 $\frac{1}{4}$ " " . .	14.95
" 232.	D " 1 $\frac{1}{4}$ " " . .	13.55
" 232.	E Pull 1 $\frac{1}{4}$ " " . .	13.55
" 232.	F Jet Closet, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe	15.55
" 233.	CC Siphon, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe . .	17.50
" 233.	C " 1 $\frac{1}{4}$ " " . .	16.00
" 233.	D " 1 $\frac{1}{4}$ " " . .	14.60
" 233.	E Pull 1 $\frac{1}{4}$ " " . .	14.60
" 233.	F Jet Closet, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe	16.60

All Tanks lined with Pure Copper (not tinned).

Above prices include No. 2 Nickel Plated (Cast Iron) Brackets, Pull Chain and Valve Trimmings. Packed singly.

Fig. 1076.	No. 231.	Size . . . . .	8 x 17 x 10 inches.	Capacity, 5 $\frac{1}{2}$ gallons.	7 x 9 Bracket.
" 1076.	No. 232.	Size . . . . .	9 x 20 x 10	" 7 $\frac{1}{2}$ "	8 x 10 "
" 1076.	No. 233.	Size . . . . .	11 x 23 x 10	" 10 $\frac{1}{2}$ "	9 x 11 "

Ash ; Dark or Light Cherry ; Plain Oak, Finished  
Antique or Natural.

No. 201.	CC Siphon, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe . .	\$16.90
" 201.	C " 1 $\frac{1}{4}$ " " . .	15.40
" 201.	D " 1 $\frac{1}{4}$ " " . .	14.00
" 201.	E Pull 1 $\frac{1}{4}$ " " . .	14.00
" 201.	F Jet Closet, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe	16.00
" 202.	CC Siphon, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe . .	17.95
" 202.	C " 1 $\frac{1}{4}$ " " . .	16.45
" 202.	D " 1 $\frac{1}{4}$ " " . .	15.05
" 202.	E Pull 1 $\frac{1}{4}$ " " . .	15.05
" 202.	F Jet Closet, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe	17.05
" 203.	CC Siphon, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe . .	19.00
" 203.	C " 1 $\frac{1}{4}$ " " . .	17.50
" 203.	D " 1 $\frac{1}{4}$ " " . .	16.10
" 203.	E Pull 1 $\frac{1}{4}$ " " . .	16.10
" 203.	F Jet Closet, 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ inch pipe	18.10

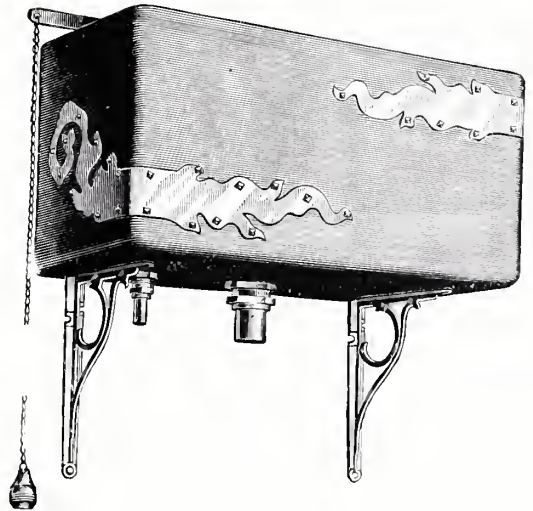


Fig. 1077.

All Tanks lined with Pure Copper (not tinned).

Above prices include No. 2 Nickel Plated (Cast Iron) Brackets, Pull Chain and Valve Trimmings. Packed singly.

Fig. 1077.	No. 201.	Size . . . . .	8 x 17 x 10 inches.	Capacity, 5 $\frac{1}{2}$ gallons.	7 x 9 Bracket.
" 1077.	No. 202.	Size . . . . .	9 x 20 x 10	" 7 $\frac{1}{2}$ "	8 x 10 "
" 1077.	No. 203.	Size . . . . .	11 x 23 x 10	" 10 $\frac{1}{2}$ "	9 x 11 "

For Cherry, Walnut or Quartered Oak, add to List : Nos. 201 and 231, \$1.25 ; Nos. 202 and 232, \$1.50 ; Nos. 203 and 233, \$1.75.

## CLOSET TANKS—CONTINUED.

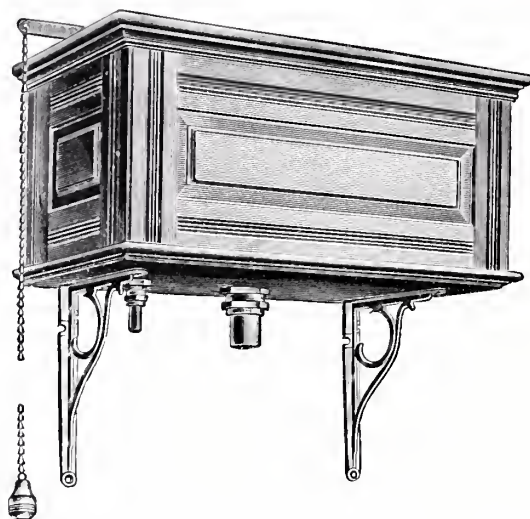


Fig. 1078.

All Tanks lined with Pure Copper (not tinned).

Above prices include No. 2 Nickel Plated (Cast Iron) Bracket, Pull Chain and Valve Trimmings. Packed singly.

Fig. 1078. No. 241. Size . . . . . 8 x 17 x 10 inches. Capacity, 5½ gallons. 7 x 9 Bracket.  
 " 1078. No. 242. Size . . . . . 9 x 20 x 10 " " 7½ " 8 x 10 "  
 " 1078. No. 243. Size . . . . . 11 x 23 x 10 " " 10½ " 9 x 11 "

For Cherry, Walnut or Quartered Oak, add to List: No. 241, \$1.25; No. 242, \$1.50; No. 243, \$1.75.

Ash; Dark or Light Cherry; Plain Oak, Finished  
Antique or Natural.

No. 261.	CC Siphon, for 1½ or 1½-in. pipe .	\$14.65
" 261.	C " " 1½ " "	13.15
" 261.	D " " 1½ " "	11.75
" 261.	E Pull " 1½ " "	11.75
" 261.	F Jet Closet " 1½ " 1½ " "	13.75
" 262.	CC Siphon " 1½ " 1½ " "	15.70
" 262.	C " " 1½ " "	14.20
" 262.	D " " 1½ " "	12.80
" 262.	E Pull " 1½ " "	12.80
" 262.	F Jet Closet " 1½ " 1½ " "	14.80
" 263.	CC Siphon " 1½ " 1½ " "	16.75
" 263.	C " " 1½ " "	15.25
" 263.	D " " 1½ " "	13.85
" 263.	E Pull " 1½ " "	13.85
" 263.	F Jet Closet " 1½ " 1½ " "	15.85

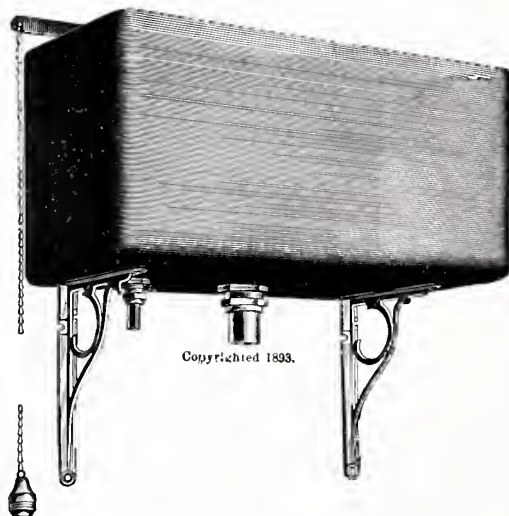


Fig. 1079.

All Tanks lined with Pure Copper (not tinned).

Above prices include No. 2 Nickel Plated (Cast Iron) Bracket, Chain Pull and Valve Trimmings. Packed singly.

Fig. 1079. No. 261. Size . . . . . 8 x 17 x 10 inches. Capacity, 5½ gallons. 7 x 9 Bracket.  
 " 1079. No. 262. Size . . . . . 9 x 20 x 10 " " 7½ " 8 x 10 "  
 " 1079. No. 263. Size . . . . . 11 x 23 x 10 " " 10½ " 9 x 11 "

For Cherry, Walnut or Quartered Oak, add to List: No. 261, \$1.25; No. 262, \$1.50; No. 263, \$1.75.



## CLOSET TANKS—CONTINUED.

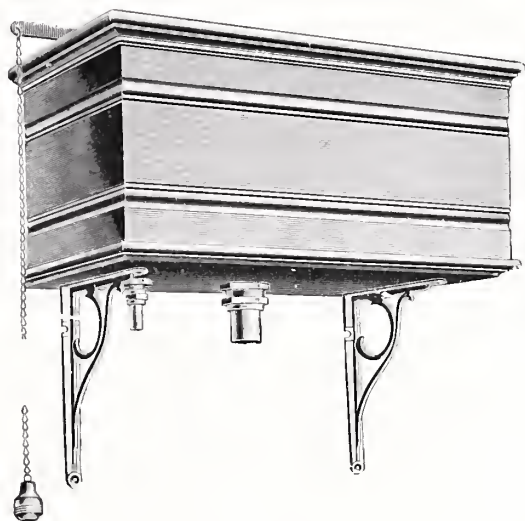


Fig. 1080.

Ash; Dark or Light Cherry; Oak, Antique or Natural; Walnut.

No. 275.	CC Siphon,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	..	\$12.20
" 275.	C	" $1\frac{1}{4}$	" " ..	10.70
" 275.	D	" $1\frac{1}{4}$	" " ..	9.30
" 275.	E	Pull $1\frac{1}{4}$	" " ..	9.30
" 275.	F	Jet Closet,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	11.30
" 276.	CC Siphon,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	..	13.15
" 276.	C	" $1\frac{1}{4}$	" " ..	11.65
" 276.	D	" $1\frac{1}{4}$	" " ..	10.25
" 276.	E	Pull $1\frac{1}{4}$	" " ..	10.25
" 276.	F	Jet Closet,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	12.25
" 277.	CC Siphon,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	..	14.15
" 277.	C	" $1\frac{1}{4}$	" " ..	12.65
" 277.	D	" $1\frac{1}{4}$	" " ..	11.25
" 277.	E	Pull $1\frac{1}{4}$	" " ..	11.25
" 277.	F	Jet Closet,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	13.25

All Tanks lined with Pure Copper (not tinned).

Above prices include No. 1 Japanned (Cast Iron) Brackets, Brass Chain, Pull and Valve Trimmings.

These Tanks are made of Hard Woods, stained in imitation, and finished only in Plain Varnish. Packed singly.

Fig. 1080.	No. 275.	Size	..	8 x 17 x 10 inches.	Capacity,	$5\frac{1}{2}$ gallons.	7 x 9 Bracket.
" 1080.	No. 276.	Size	..	9 x 20 x 10	"	$7\frac{1}{2}$	8 x 10 "
" 1080.	No. 277.	Size	..	11 x 23 x 10	"	$10\frac{1}{2}$	9 x 11 "

These Tanks are made of Sound Woods and finished with Oil only.

No. 281.	CC Siphon,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	..	\$11.40
" 281.	C	" $1\frac{1}{4}$	" " ..	9.90
" 281.	D	" $1\frac{1}{4}$	" " ..	8.50
" 281.	E	Pull $1\frac{1}{4}$	" " ..	8.50
" 281.	F	Jet Closet,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	10.50
" 282.	CC Siphon,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	..	12.30
" 282.	C	" $1\frac{1}{4}$	" " ..	10.80
" 282.	D	" $1\frac{1}{4}$	" " ..	9.40
" 282.	E	Pull $1\frac{1}{4}$	" " ..	9.40
" 282.	F	Jet Closet,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	11.40
" 283.	CC Siphon,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	..	13.25
" 283.	C	" $1\frac{1}{4}$	" " ..	11.75
" 283.	D	" $1\frac{1}{4}$	" " ..	10.35
" 283.	E	Pull $1\frac{1}{4}$	" " ..	10.35
" 283.	F	Jet Closet,	$1\frac{1}{4}$ or $1\frac{1}{2}$ inch pipe	12.35

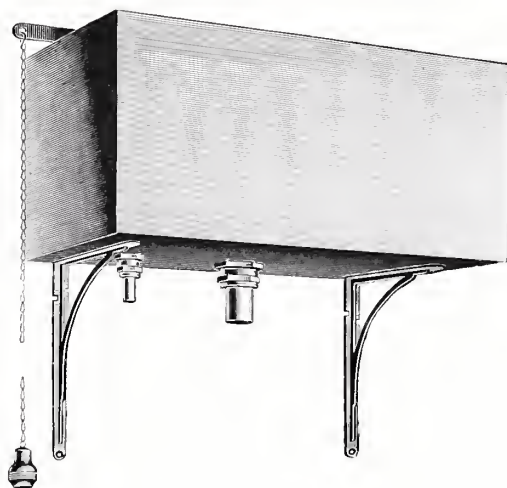


Fig. 1081.

All Tanks lined with Pure Copper (not tinned).

Above prices include No. 1 Japanned (Cast Iron) Bracket, Brass Chain, Pull and Valve Trimmings. Packed singly.

Fig. 1081.	No. 281.	Size	..	8 x 17 x 10 inches.	Capacity,	$5\frac{1}{2}$ gallons.	7 x 9 Bracket.
" 1081.	No. 282.	Size	..	9 x 20 x 10	"	$7\frac{1}{2}$	8 x 10 "
" 1081.	No. 283.	Size	..	11 x 23 x 10	"	$10\frac{1}{2}$	9 x 11 "



CLOSET TANKS—CONTINUED.

“PERFECTION” AUTOMATIC COPPER-LINED CISTERN.

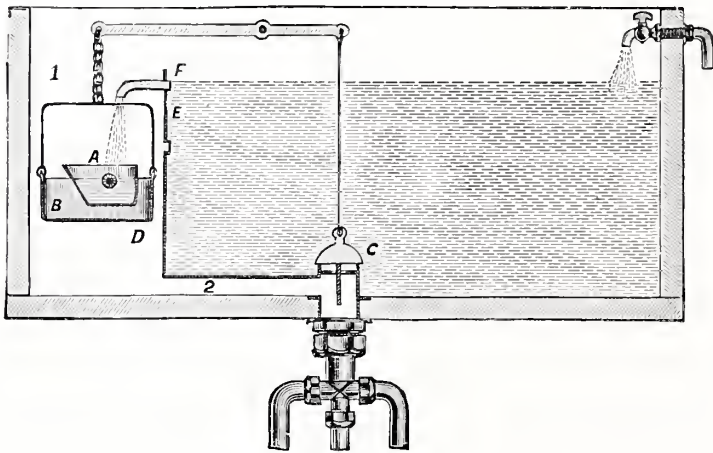


Fig. 1082.

These Cisterns are made to hold any desired quantity of water from two gallons up. Can be regulated to fill and discharge at any given interval, from five minutes to ten hours, and are unquestionably the simplest and most reliable cisterns for Urinals and Hopper Water Closets now in use, and are guaranteed not to get out of order.

SHOWING VALVE C OPEN AND CISTERN EMPTYING.

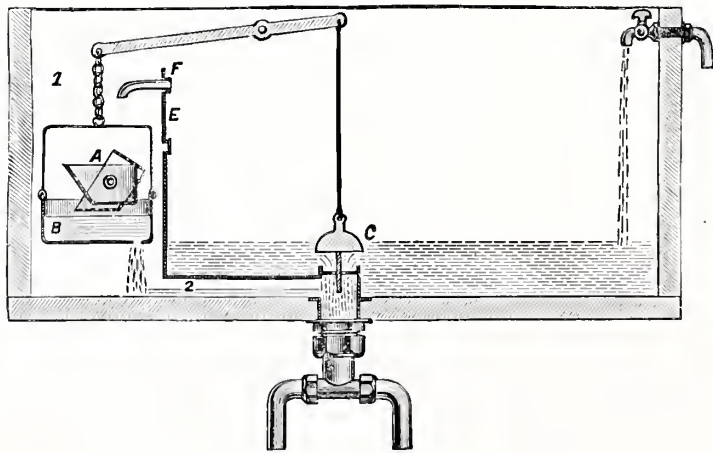


Fig. 1083.

DESCRIPTION — 1 is a small compartment, B is a vessel suspended to the valve lever, A is a small tilting bucket. The supply valve can be set to fill the cistern as required. When the cistern gets full, the water flows through the Tube F into the Tilting Bucket A; this, when it gets full, upsets the contents into the Vessel B, which instantly becomes heavier than the outlet Valve C and lifts it, keeping it open until the contents of the cistern are discharged to the fixtures. As soon as the water leaks from the Vessel B through the Hole D, the Valve C becomes the heaviest element and closes and remains so until the cistern fills again. 2 is a tube that conducts the waste water from the compartment 1 to the discharge pipe.

Figs. 1082 and 1083. For 2-gallon Cistern . . . . .	\$10.00
Add for each additional gallon . . . . .	1.00

## CLOSET TANKS—CONTINUED.

"TORRENT" FORE AND AFTER WASH CISTERN.

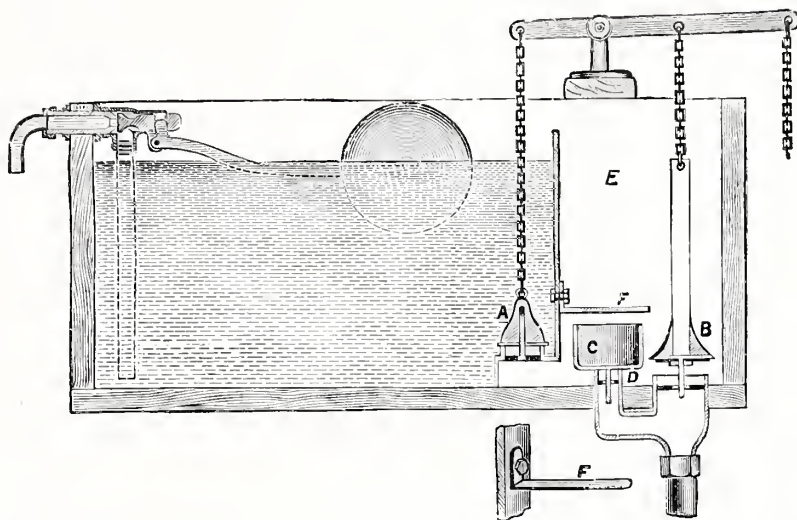


Fig. 1084.

When the Seat is depressed, the Valve A opens, the Valve B closes, and water flows into Compartment E. As the water surrounds the Float C, it lifts it, causing the preliminary flow to the Closet; as the Compartment E fills, the Float C gets full and sinks, closing the Valve opening under it. When the seat is relieved, the Valve A closes, the Valve B opens and three gallons of water from Compartment E is delivered to Closet, and the water in the Float C leaks out at hole D.

"TORRENT" FORE AND AFTER WASH CISTERN—Fig. 1084.

Fig. 1084. Price of Copper-Lined Cistern, 24 x 12 x 12 inches . . . . .	\$14.00
" 1684. Paneled Hard Wood . . . . .	18.00

CLOSET TANKS—CONTINUED.

PLAIN PULL TANK, TOP OR BOTTOM SUPPLY.

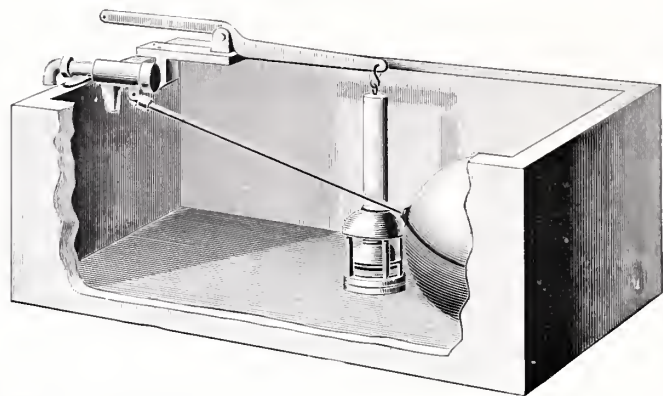


Fig. 1085.

Fig. 1085.	No. 0, 18 x 10 x 10 inches . . . . .	88,50
" 1085.	No. 1, 21 x 11 x 10 " . . . . .	9,00
" 1085.	No. 2, 24 x 14 x 10 " . . . . .	10,00

PLAIN SIPHON TANK, TOP OR BOTTOM SUPPLY.

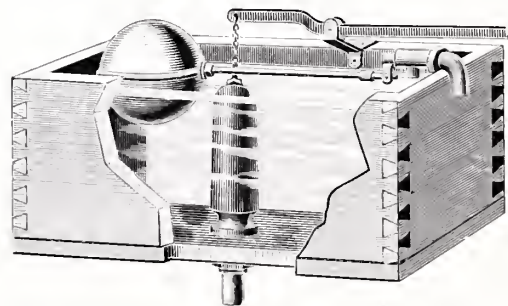


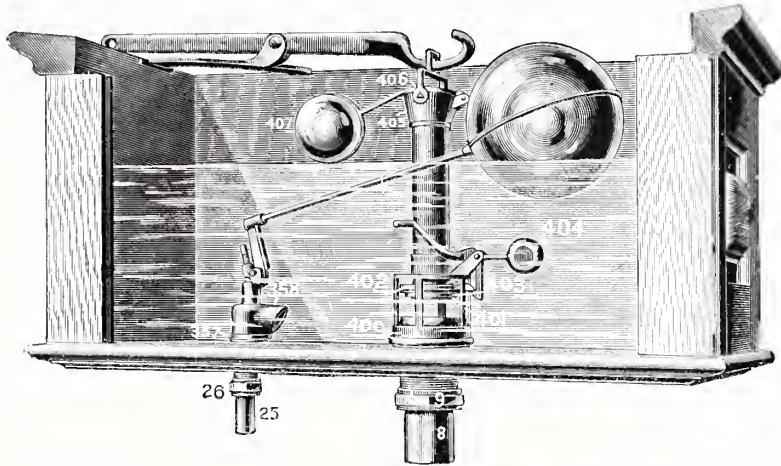
Fig. 1086.

Fig. 1086.	No. 0, 18 x 10 x 10 inches . . . . .	89,50
" 1086.	No. 1, 21 x 11 x 10 " . . . . .	10,00
" 1086.	No. 2, 24 x 14 x 10 " . . . . .	11,00

# CLOSET TANKS—CONTINUED.

## SECTIONAL VIEWS.

VALVE F, FOR 1 1-2 OR 1 1-4 INCH PIPE, TO OPERATE SIPHON JET CLOSETS.



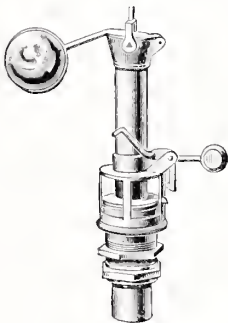
Copyrighted 1893.

Fig. 1087.

VALVE F.

BOTTOM SUPPLY BALL COCK.

VALVE D, 1 1-4 IN. SIPHON.



Copyrighted 1893.

Fig. 1033.



Copyrighted 1893.

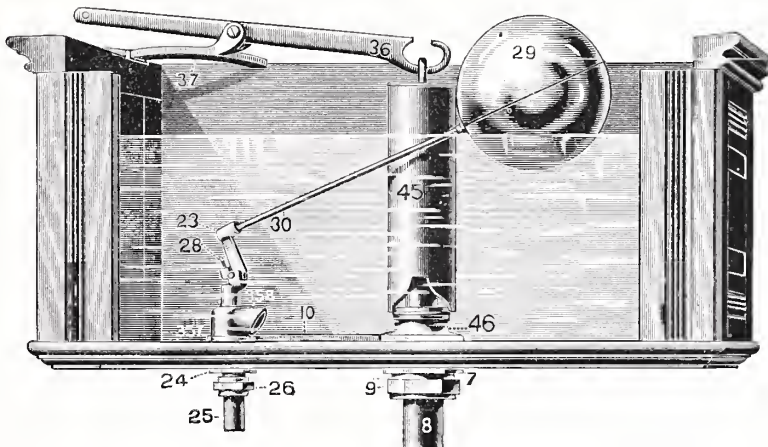
Fig. 1089.



Copyrighted 1893.

Fig. 1090.

D SIPHON VALVE FOR 1 1-4 INCH PIPE.



Copyrighted 1893.

Fig. 1091.



CLOSET TANK VALVES.

No. 1 PULL VALVE.



Fig. 1092.

SIZE . . . . . INCHES.	1 1/4
Fig. 1092. With Rough Coupling .	\$1.20
" 1092. " Finished " .	1.35
" 1092. " Nickel Plated " .	1.45

SIZE . . . . . INCHES.	1 1/2
Fig. 1093. With Rough Coupling .	\$1.50
" 1093. " Finished " .	1.65
" 1093. " Nickel Plated " .	1.75

No. 2 PULL VALVE.



Fig. 1093.

"NOISELESS" PATENT SLOW CLOSING CISTERN VALVE.

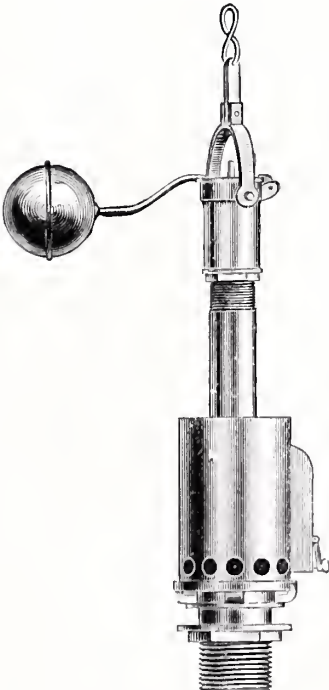


Fig. 1094.

DESCRIPTION — By pulling the Lever it lifts the Plunger shown just above the Valve Seat, and this forces the water from the Cylinder through the small valve shown at the side. Upon releasing the Lever, the Plunger and Valve descend as slowly as the Cylinder is permitted to refill with water. To regulate the flow, turn the small screw on the side of Valve Cylinder. The Float Valve on the overflow has 2-inch adjustment. It makes the Valve noiseless, and when the Valve seats, it breaks the column of water, which provides enough after-supply to fill the Pan of a Washout Water Closet.

Fig. 1094. With Lever . . . \$5.00

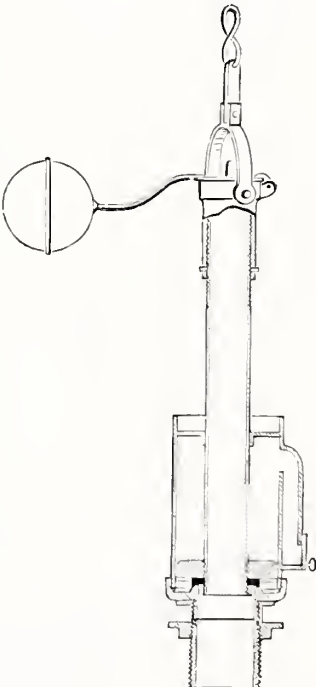


Fig. 1095.

# CLOSET TANK VALVES—CONTINUED.

No. 3 X PULL VALVE WITH SOLDERING TAIL PIECE.

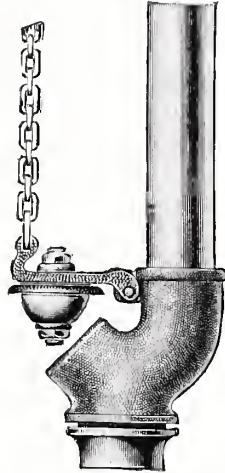


Fig. 1096.

Fig. 1096 . . . . . Each. \$1.20

No. 3 PULL VALVE.

No. 3 Y PULL VALVE WITH DETACHABLE SHANK.

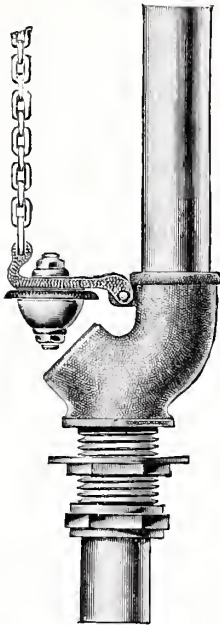


Fig. 1097.

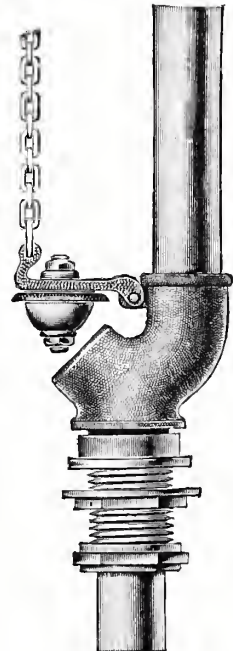


Fig. 1098.

Fig. 1097.	With Rough Couplings . . . . .	Each.	\$1.60
" 1097.	" Finished Couplings . . . . .	"	1.75
" 1097.	" Nickel Plated Couplings . . . . .	"	1.85
" 1098.	" Rough Couplings . . . . .	"	1.85
" 1098.	" Finished Couplings . . . . .	"	2.00
" 1098.	" Nickel Plated Couplings . . . . .	"	2.10

CLOSET TANK VALVES—CONTINUED.

No. 3 X SIPHON VALVE WITH SOLDERING TAIL PIECE.

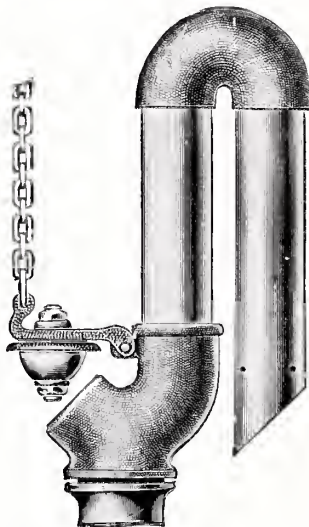


Fig. 1099.

Fig. 1099 . . . . . Each. \$1.60

No. 3 Y SIPHON VALVE WITH DETACHABLE SHANK.

No. 3 SIPHON VALVE.

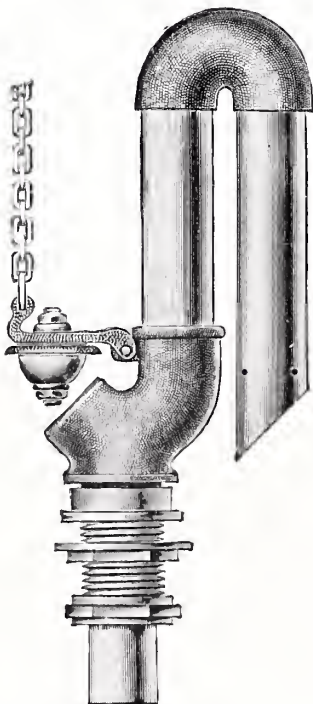


Fig. 1100.

Fig. 1100. With Rough Couplings . Each. \$2.25  
" 1100. " Finished " . " 2.40  
" 1100. " Nickel Plated " . " 2.50

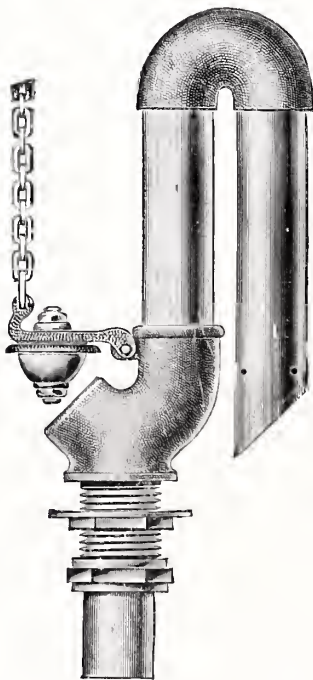


Fig. 1101.

Fig. 1101. With Rough Couplings . Each. \$2.00  
" 1101. " Finished " . " 2.15  
" 1101. " Nickel Plated " . " 2.25

# URINAL SHIELDS.

FLAT TOP.

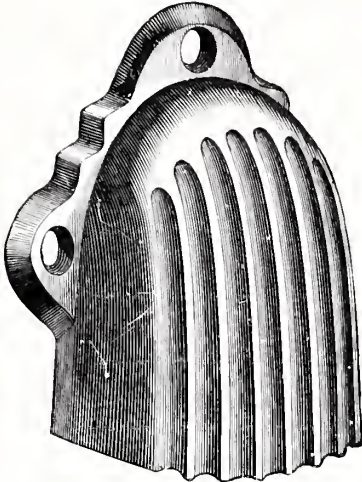


Fig. 1102.

CORNER TOP.

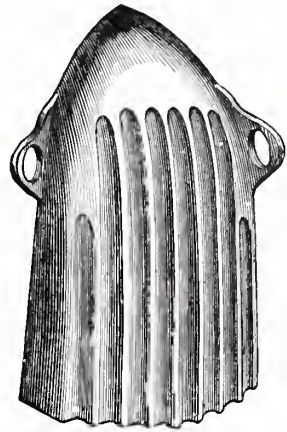


Fig. 1103.

Fig. 1102.	Finished. . . . .	Each.	\$1.50
" 1102.	Nickel Plated . . . . .	"	2.00
" 1102.	Silver Plated . . . . .	"	3.50

Fig. 1103.	Finished. . . . .	Each.	\$1.50
" 1103.	Nickel Plated . . . . .	"	2.00
" 1103.	Silver Plated . . . . .	"	3.50

FLAT BOTTOM.

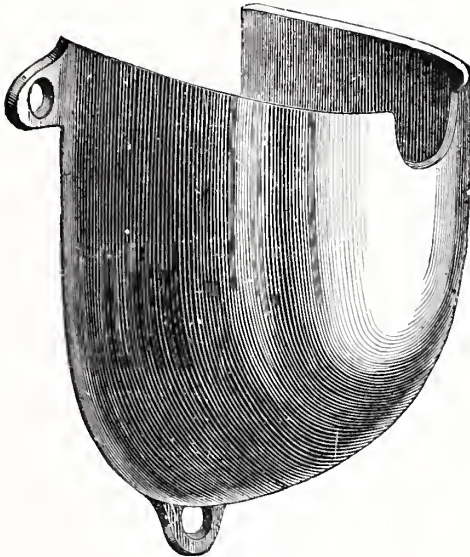


Fig. 1104.

CORNER BOTTOM.

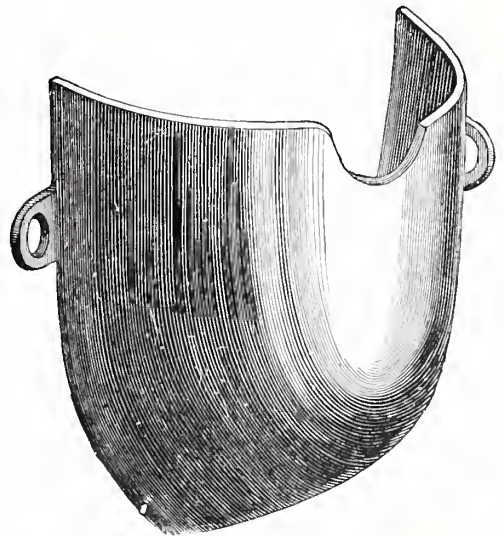


Fig. 1105.

Fig. 1104.	Finished. . . . .	Each.	\$2.50
" 1104.	Nickel Plated . . . . .	"	3.00
" 1104.	Silver Plated . . . . .	"	4.50

Fig. 1105.	Finished. . . . .	Each.	\$2.50
" 1105.	Nickel Plated . . . . .	"	3.00
" 1105.	Silver Plated . . . . .	"	4.50



# CAST BRASS URINAL TRAPS, ETC.

No. 1. WITH SECRET DRAIN.

No. 2. WITH EXPOSED DRAIN.

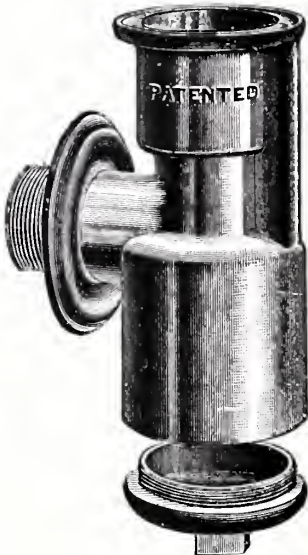


Fig. 1106.

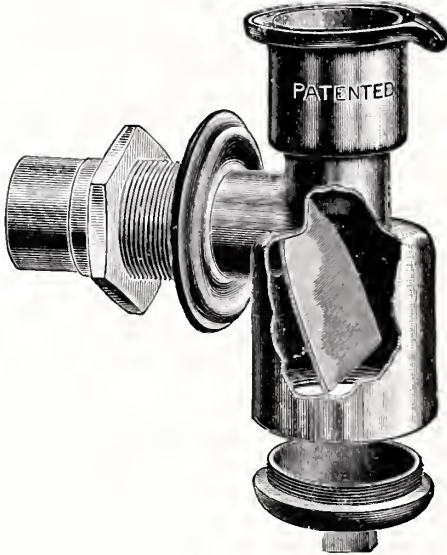


Fig. 1107.

Fig. 1106. Brass, Polished. . . . . \$4.00  
" 1106. " Nickeled . . . . . 4.50  
Straight or Bent Couplings. Vent Couplings  
50 cents extra.

Fig. 1107. Brass, Polished. . . . . \$3.75  
" 1107. " Nickeled . . . . . 4.00  
Straight or Bent Couplings. Vent Couplings  
50 cents extra.

## URINAL OUTLET CONNEC- TION.

## BRASS BELL TRAP AND STRAINER FOR URINAL STALL BASE.

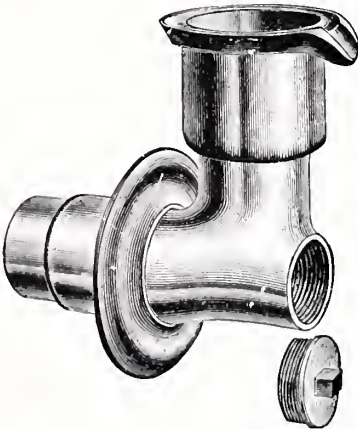


Fig. 1108.

Fig. 1108. Brass, Polished, \$3.50  
" 1108. " Nickeled, 3.75  
Straight or Bent Couplings.

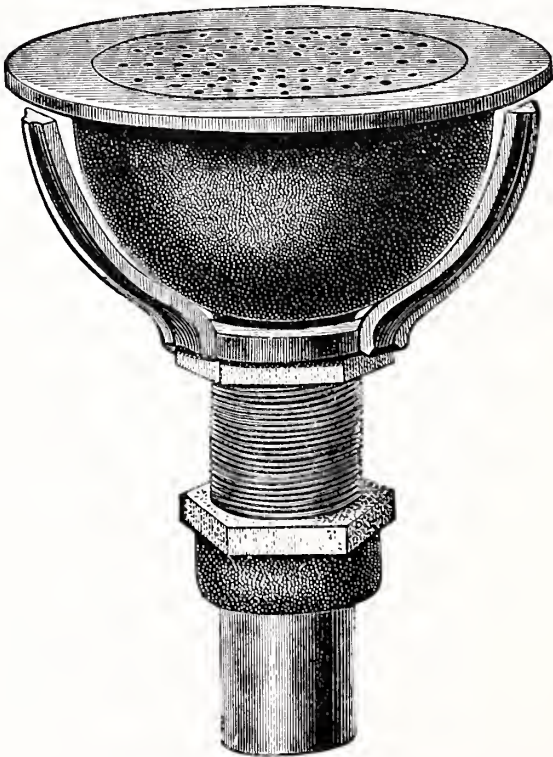


Fig. 1109.

Fig. 1109. Polished . . . . . \$3.50  
" 1109. Nickel Plated . . . . . 4.00

# URINAL STALLS.

SLATE OR MARBLE.

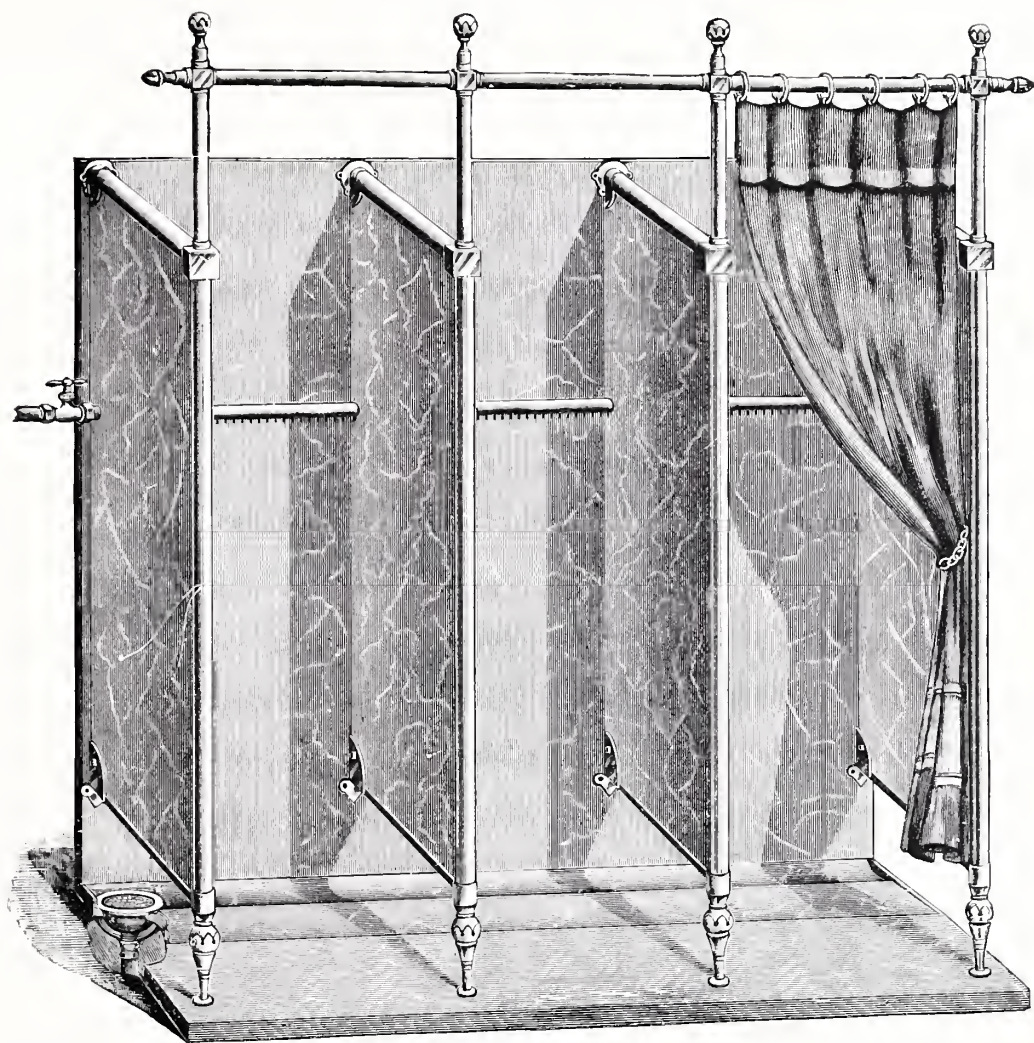


Fig. 1110.

With brass binding on the edges of the ends and partitions, Laving Pipe with Tee Handle Stop, Brass Bell Trap with straight or bent coupling, Strainer and Brass Clamps, all polished or nickel plated.

The brass edging on the above illustrated Stall is ornamental. By hanging portieres from the rail, a greater degree of privacy is secured.

Prices furnished on application.



URINAL STALL FITTINGS.

ANGLE CLAMP.

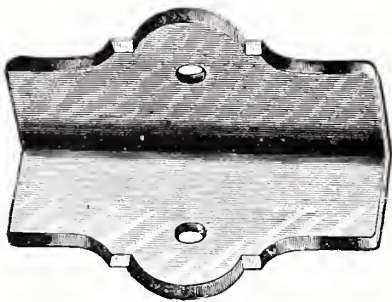


Fig. 1111.

ANGLE CLAMP.

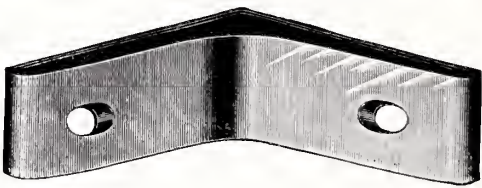


Fig. 1112.

Fig. 1111.	Finished . . . . .	Each.	\$0.75
" 1111.	Nickel Plated . . . . .	"	.90
" 1112.	Finished . . . . .	"	.50
" 1112.	Nickel Plated . . . . .	"	.60

BOTTOM ATTACHMENT FOR LEG.

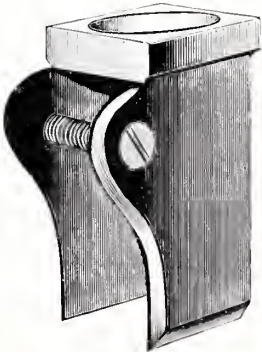


Fig. 1113.

Fig. 1113.	Polished Brass . . . . .	Each.	\$2.25
" 1113.	Nickel Plated . . . . .	"	2.50

DOUBLE HEAD BOLT.



Fig. 1114.

SINGLE HEAD BOLT.



Fig. 1115.

Fig. 1114.	Finished . . . . .	Each.	\$0.30
" 1114.	Nickel Plated . . . . .	"	.45
" 1115.	Finished . . . . .	"	.20
" 1115.	Nickel Plated . . . . .	"	.30

# URINAL STALL FITTINGS—CONTINUED.

RIGHT WING.

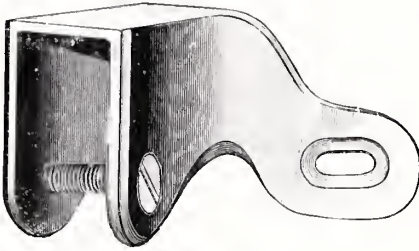


Fig. 1116.

LEFT WING.

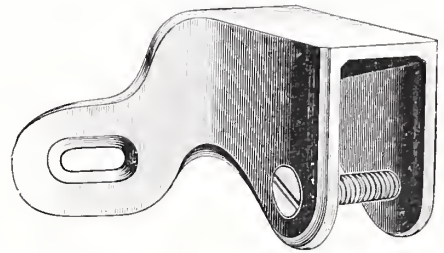


Fig. 1117.

Fig. 1116. Polished Brass . . . Each. \$1.25  
 " 1116. Nickel Plated . . . " 1.50

Fig. 1117. Polished Brass . . . Each. \$1.25  
 " 1117. Nickel Plated . . . " 1.50

TOP ATTACHMENT FOR RAIL.

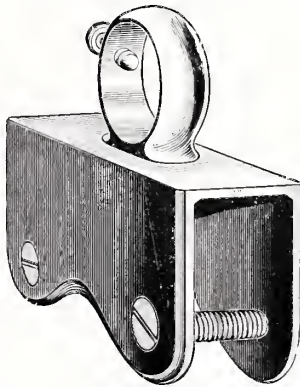


Fig. 1118.

DOUBLE WING.

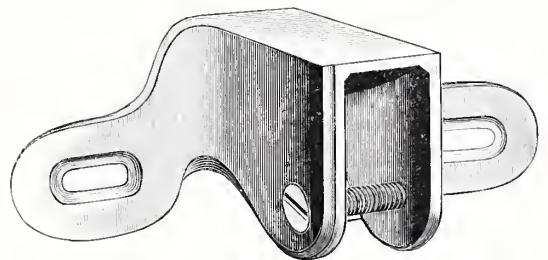
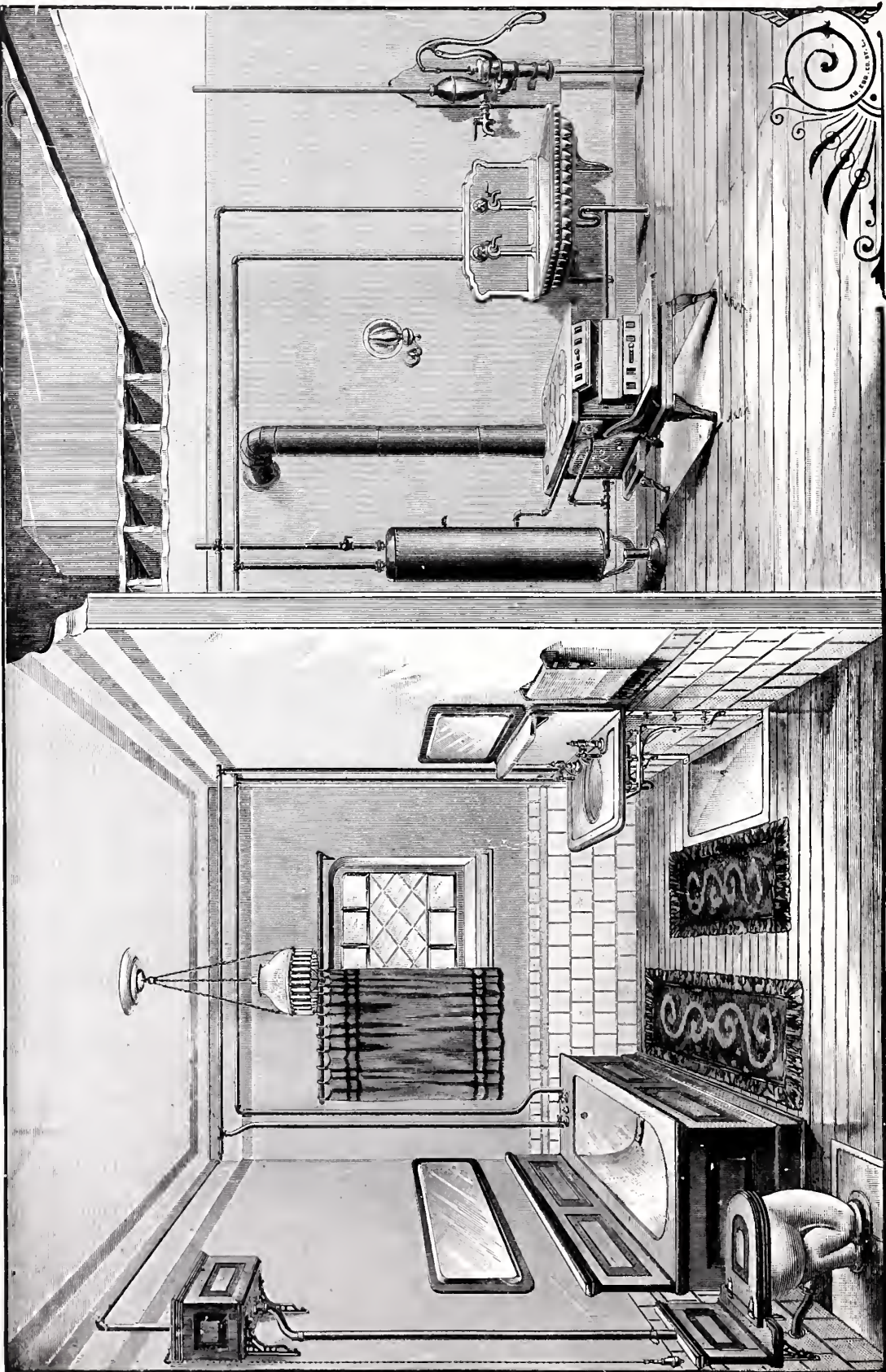


Fig. 1119.

Fig. 1118. Polished Brass . . . Each. \$2.50  
 " 1118. Nickel Plated . . . " 2.75

Fig. 1119. Polished Brass . . . Each. \$1.50  
 " 1119. Nickel Plated . . . " 1.75





SHOWING AN ARRANGEMENT FOR WATER SUPPLY IN HOUSES WHERE THERE ARE NO WATER WORKS—Fig. 1120.

## WORCESTER HOPPER STANDS.

HOPPER STAND, WITH 2-INCH  
VENTILATING PIPE.

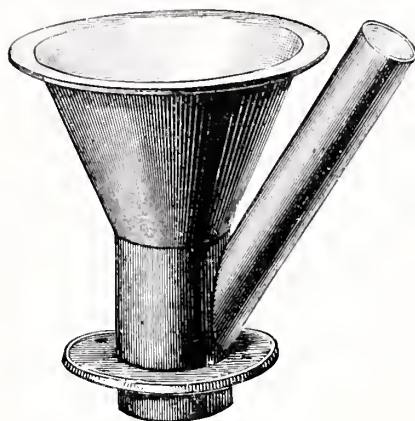


Fig. 1121.

HOPPER STAND, WITHOUT  
VENTILATING PIPE.

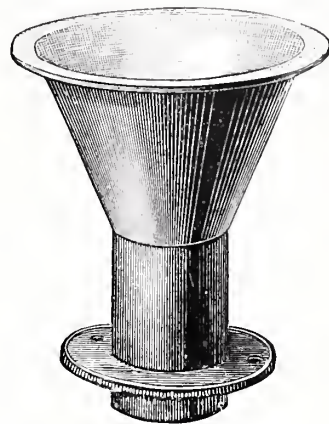


Fig. 1122.

Fig. 1121. Painted . . . . . \$1.50  
" 1121. Enameled . . . . . 2.25

Fig. 1122. Painted . . . . . \$1.25  
" 1122. Enameled . . . . . 1.75

## COMBINED HOPPER BODY AND S TRAP.

WITH 2-INCH ANGLE VENT, FOR IRON  
PIPE CONNECTION.



Fig. 1123.

WITHOUT 2-INCH ANGLE VENT, FOR  
IRON PIPE CONNECTION.

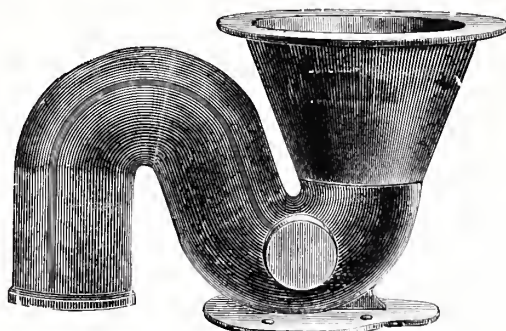


Fig. 1124.

Fig. 1123. Painted . . . . . \$4.00  
" 1123. Enameled . . . . . 5.25

Fig. 1124. Painted . . . . . \$3.50  
" 1124. Enameled . . . . . 4.75

S Traps for above can be furnished for Lead Pipe Connection at the same price.

The Hopper Body and  $\frac{3}{4}$  S or  $\frac{1}{2}$  S Painted or Enameled Trap Combined, with or without 2-inch Angle Vent, for Iron Pipe Connection only, can be furnished at same price as the Hopper Body and S Trap Combined.



HOPPER TRAPS.

HIGH PATTERN.

FULL S FOR IRON PIPE.



Fig. 1125.

Fig. 1125. Painted . . . . .	\$1.75
" 1125. Enameled . . . . .	3.50
Add, if with 2-inch Hub Vent . . . . .	.50
" " Heel or Side Outlet . . . . .	.50

FULL S FOR LEAD PIPE.

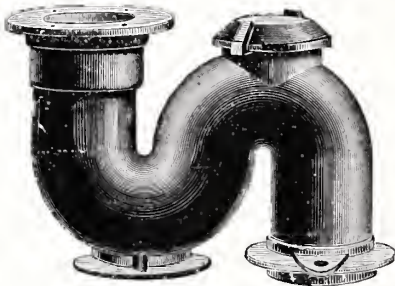


Fig. 1126.

Fig. 1126. Painted . . . . .	\$1.75
" 1126. Enameled . . . . .	3.50
Add, if with 2-inch Hub Vent . . . . .	.50
" " Heel or Side Outlet . . . . .	.50

THREE-QUARTERS S FOR IRON PIPE.

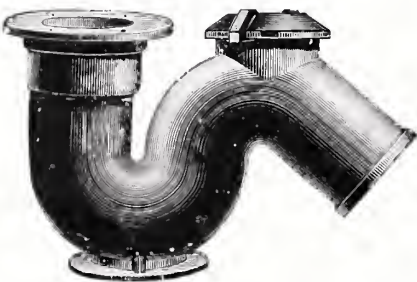


Fig. 1127.

Fig. 1127. Painted . . . . .	\$1.75
" 1127. Enameled . . . . .	3.50
Add, if with 2-inch Hub Vent . . . . .	.50
" " Heel or Side Outlet . . . . .	.50

ONE-HALF S FOR IRON PIPE.



Fig. 1128.

Fig. 1128. Painted . . . . .	\$1.75
" 1128. Enameled . . . . .	3.50
Add, if with 2-inch Hub Vent . . . . .	.50
" " Heel or Side Outlet . . . . .	.50

Approximate weight of each Trap, 22 pounds.

## HOPPER TRAPS.

CONTINUED.

## LOW PATTERN.

FULL S FOR IRON PIPE.

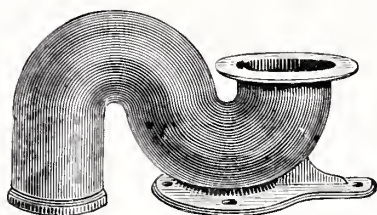


Fig. 1129.

FULL S VENTED FOR IRON PIPE.

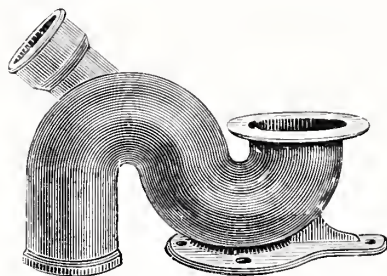


Fig. 1130.

Fig. 1129. Painted . . . . .	\$1.75
" 1129. Enameled . . . . .	3.00

Fig. 1130. Painted . . . . .	\$2.25
" 1130. Enameled . . . . .	3.50

FULL S FOR LEAD PIPE.

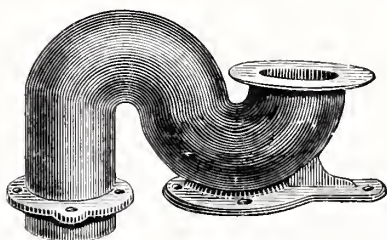


Fig. 1131.

FULL S VENTED FOR LEAD PIPE.

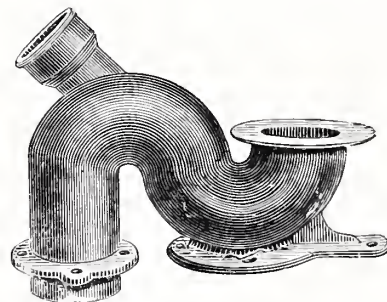


Fig. 1132.

Fig. 1131. Painted . . . . .	\$1.75
" 1131. Enameled . . . . .	3.00

Fig. 1132. Painted . . . . .	\$2.25
" 1132. Enameled . . . . .	3.50

Approximate weight of each Trap, 20 pounds.



HOPPER TRAPS.

CONTINUED.

LOW PATTERN.

THREE-QUARTER S FOR IRON PIPE.

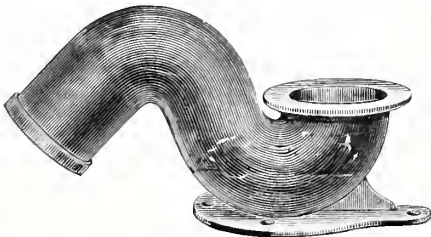


Fig. 1133.

THREE-QUARTER S VENTED FOR IRON PIPE.

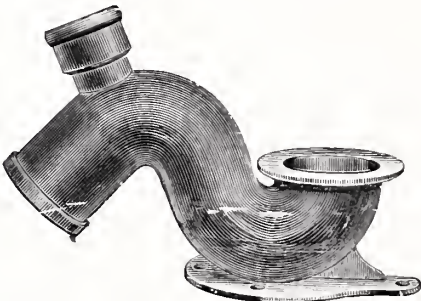


Fig. 1134.

Fig. 1133.	Painted . . . . .	\$1.75
" 1133.	Enameled . . . . .	3.00

Fig. 1134.	Painted . . . . .	\$2.25
" 1134.	Enameled . . . . .	3.50

ONE-HALF S FOR IRON PIPE.

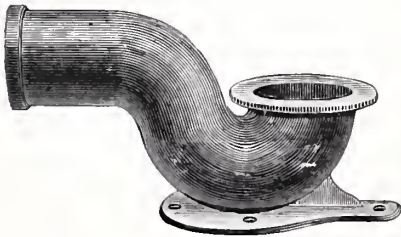


Fig. 1135.

ONE-HALF S VENTED FOR IRON PIPE.

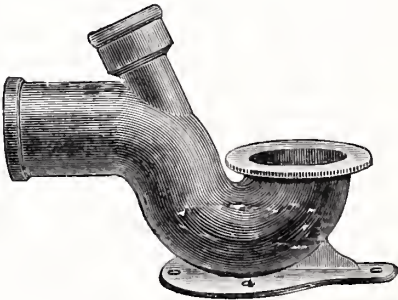


Fig. 1136.

Fig. 1135.	Painted . . . . .	\$1.75
" 1135.	Enameled . . . . .	3.00

Fig. 1136.	Painted . . . . .	\$2.25
" 1136.	Enameled . . . . .	3.50

Approximate weight of each Trap, 20 pounds.

CAST IRON SOIL PIPE.

SINGLE HUB.

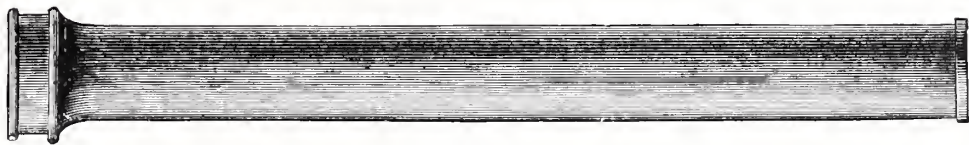


Fig. 1137.

	Inches.	Feet Long.	Stand-ard.	Extra Heavy.		Inches.	Feet Long.	Stand-ard.	Extra Heavy.
Fig. 1137 . Per foot.	2	5	\$0.24	.35	Fig. 1137 . Per foot.	6	5	\$0.60	1.20
" 1137 . "	3	5	.30	.55	" 1137 . "	7	5	1.00	1.75
" 1137 . "	4	5	.36	.75	" 1137 . "	8	5	1.25	2.25
" 1137 . "	5	5	.50	1.00	" 1137 . "	10	5	2.00	3.00

All sizes made in 5-foot lengths. The length does not include the Hub, consequently the Pipe measures 5 feet full when laid down.

DOUBLE HUB.



Fig. 1138.

	Inches.	Standard.	Extra Heavy.
Fig. 1138. Per length of 5 feet . . . . .	2	\$1.50	2.05
" 1138. " 5 " . . . . .	3	1.80	3.05
" 1138. " 5 " . . . . .	4	2.10	4.05
" 1138. " 5 " . . . . .	5	2.80	5.30
" 1138. " 5 " . . . . .	6	3.30	6.30
" 1138. " 5 " . . . . .	8	7.25	12.75

SOIL PIPE HOOKS.

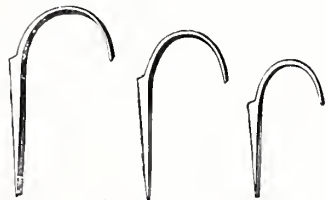


Fig. 1139.

Fig. 1139. 2 inches . . . . . Each.	\$0.08	Fig. 1139. 5 inches . . . . . Each.	\$0.15
" 1139. 3 " . . . . .	.10	" 1139. 6 " . . . . .	.20
" 1139. 4 " . . . . .	.12	" 1139. 8 " . . . . .	.40



## SOIL PIPE FITTINGS—CONTINUED.

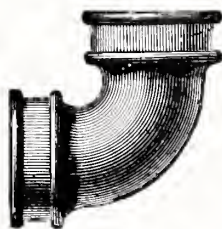
QUARTER BEND, DOUBLE  
HUB.

Fig. 1144.

SIXTH BEND.

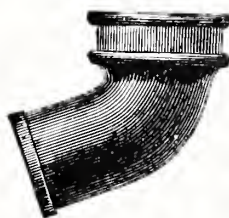


Fig. 1145.

EIGHTH BEND.

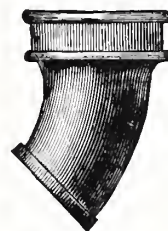


Fig. 1146.

Fig.	Size,		Standard.	Extra Heavy.
Fig. 1144.	2 inch		\$0.70	.80
" 1144.	3 "		.85	1.00
" 1144.	4 "		.95	1.40
" 1144.	5 "		1.30	1.65
" 1144.	6 "		1.50	2.05
" 1145.	2 "		.40	.50
" 1145.	3 "		.55	.70
" 1145.	4 "		.65	1.10
" 1145.	5 "		1.00	1.35
" 1145.	6 "		1.20	1.75
" 1145.	8 "		3.00	4.00
" 1146.	2 "		.35	.45
" 1146.	3 "		.45	.65
" 1146.	4 "		.65	1.00
" 1146.	5 "		.90	1.20
" 1146.	6 "		1.05	1.40
" 1146.	7 "		2.00	2.75
" 1146.	8 "		2.75	3.75
" 1146.	10 "		3.75	5.00

Fifth Bend not illustrated; same List as Sixth.

EIGHTH BEND, DOUBLE HUB.



Fig. 1147.

SIXTEENTH BEND.

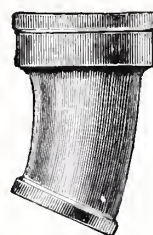


Fig. 1148.

Fig.	Size,		Standard.	Extra Heavy.
Fig. 1147.	4 inch		\$0.90	1.30
" 1148.	2 "		.35	.45
" 1148.	3 "		.45	.65
" 1148.	4 "		.65	1.00
" 1148.	5 "		.90	1.20
" 1148.	6 "		1.05	1.40
" 1148.	8 "		2.75	3.75



SOIL PIPE FITTINGS — CONTINUED.

T BRANCH.

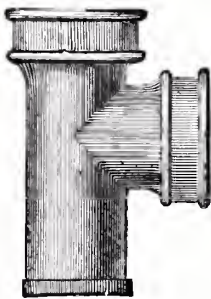


Fig. 1149.

Fig. 1149.	Size, 2x2 inch	}	Standard.	Ex. Heavy.
" 1149.	" 3x3 "		\$0.40	.60
" 1149.	" 3x2 "	}	.55	.80
" 1149.	" 4x4 "		.75	1.20
" 1149.	" 4x3 "			
" 1149.	" 4x2 "	}	1.20	1.50
" 1149.	" 5x5 "			
" 1149.	" 5x4 "	}	1.40	2.00
" 1149.	" 5x3 "			
" 1149.	" 6x6 "	}	1.40	2.00
" 1149.	" 6x5 "			
" 1149.	" 6x4 "	}	1.40	2.00
" 1149.	" 6x3 "			
" 1149.	" 6x2 "	}	1.40	2.00
" 1149.	" 6x2 "			

SANITARY T BRANCH.

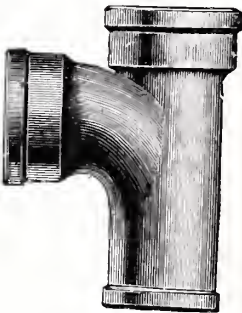


Fig. 1150.

Fig. 1149.	Size, 2x2 inch	}	Standard.	Ex. Heavy.	Fig. 1150.	Size, 8x8 inch	}	Standard.	Ex. Heavy.
" 1149.	" 3x3 "		\$0.40	.60	" 1150.	" 8x6 "		\$3.25	5.50
" 1149.	" 3x2 "	}	.55	.80	" 1150.	" 8x5 "			
" 1149.	" 4x4 "		.75	1.20	" 1150.	" 8x4 "	}	6.50	9.00
" 1149.	" 4x3 "				" 1150.	" 8x3 "			
" 1149.	" 4x2 "	}	1.20	1.50	" 1150.	" 8x2 "	}	6.50	9.00
" 1149.	" 5x5 "				" 1150.	" 10x10 "			
" 1149.	" 5x4 "	}	1.20	1.50	" 1150.	" 10x8 "	}	6.50	9.00
" 1149.	" 5x3 "				" 1150.	" 10x6 "			
" 1149.	" 5x2 "	}	1.20	1.50	" 1150.	" 10x5 "	}	6.50	9.00
" 1149.	" 6x6 "				" 1150.	" 10x4 "			
" 1149.	" 6x5 "	}	1.40	2.00	" 1150.	" 10x3 "	}	6.50	9.00
" 1149.	" 6x4 "				" 1150.	" 10x2 "			
" 1149.	" 6x3 "	}	1.40	2.00	" 1150.	" 10x2 "			
" 1149.	" 6x2 "				" 1150.	" 10x2 "			

SANITARY T BRANCH WITH SIDE INLET. RIGHT OR LEFT.

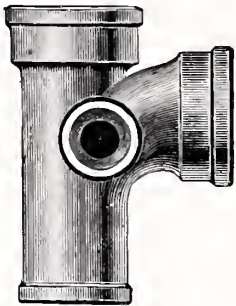


Fig. 1151.

Standard. Ex. Heavy.

Fig. 1150.	Size, 2x2 inch	}	Standard.	Ex. Heavy.	Fig. 1151.	Size, 5x5 inch	}	Standard.	Ex. Heavy.
" 1150.	" 3x3 "		\$0.60	.80	" 1151.	" 5x2 "		\$1.60	2.25
" 1150.	" 3x2 "	}	.80	1.25	" 1151.	" 5x4 "	}	2.00	3.25
" 1150.	" 4x4 "		1.20	1.60	" 1151.	" 6x6 "		1.80	2.20
" 1150.	" 4x2 "				" 1151.	" 6x2 "			
" 1151.	" 4x4 "	}	1.20	1.60	" 1151.	" 6x4 "	}	1.80	2.20
" 1151.	" 4x4 "				" 1151.	" 6x4 "			

T BRANCH WITH SIDE INLET. RIGHT OR LEFT.

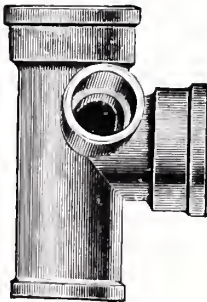


Fig. 1152.

Fig. 1152.	Size, 4x4 inch, with 2-inch Inlet	}	Standard.	Ex. Heavy.
" 1152.	" 4x3 "		\$1.35	1.80
" 1152.	" 4x2 "	}	1.80	2.10
" 1152.	" 5x5 "			
" 1152.	" 5x4 "	}	2.00	2.60
" 1152.	" 5x3 "			
" 1152.	" 5x2 "	}	2.00	2.60
" 1152.	" 6x6 "			
" 1152.	" 6x5 "	}	2.00	2.60
" 1152.	" 6x4 "			
" 1152.	" 6x3 "	}	2.00	2.60
" 1152.	" 6x2 "			

LONG T BRANCH.

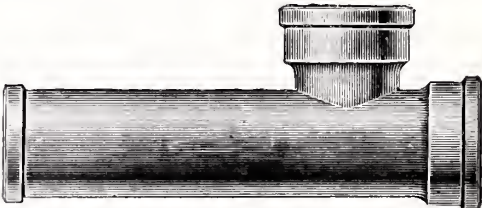


Fig. 1153.

Fig.	Size.	Standard.	Ex. Heavy.
1153.	4x4, 24 inches in the Clear.	\$2.00	3.00
1153.	4x4, 30 "	2.50	3.75
1153.	4x4, 36 "	3.00	4.50
1153.	5x4, 24 "	2.75	4.00
1153.	5x4, 30 "	3.50	5.00
1153.	5x4, 36 "	4.25	6.00
1153.	6x4, 24 "	3.50	5.00
1153.	6x4, 30 "	4.50	6.50
1153.	6x4, 36 "	5.50	8.00

# SOIL PIPE FITTINGS—CONTINUED.

## CROSS.

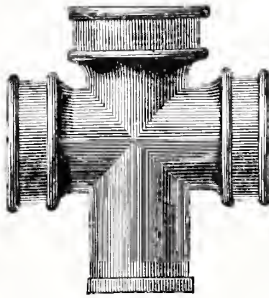


Fig. 1154.

Fig.	Size.	Standard.	Ex. Heavy.	Size.	Standard.	Ex. Heavy.
1154.	2x2 inch	\$0.80	1.00	8x8 inch	\$5.00	7.00
1154.	3x3 "	1.10	1.40	8x6 "		
1154.	3x2 "			8x5 "		
1154.	4x4 "	1.25	1.75	8x4 "		
1154.	4x3 "			8x3 "	8.00	11.00
1154.	4x2 "			8x2 "		
1154.	5x5 "			10x10 "		
1154.	5x4 "	1.60	2.10	10x8 "		
1154.	5x3 "					
1154.	5x2 "					
1154.	6x6 "					
1154.	6x5 "	2.50	3.30			
1154.	6x4 "					
1154.	6x3 "					
1154.	6x2 "					

## SANITARY CROSS.

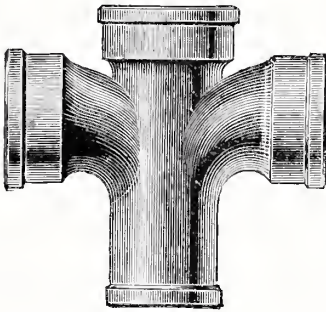


Fig. 1155.

Fig.	Size.	Standard.	Ex. Heavy.
1155.	2x2 inch	\$1.00	1.25
1155.	3x3 "	1.25	1.60
1155.	3x2 "		
1155.	4x4 "	1.65	2.00
1155.	4x2 "		
1155.	5x5 "	2.25	3.00
1155.	5x2 "		
1155.	6x6 "	3.00	4.00
1155.	6x2 "		
1155.	6x4 "		

## Y BRANCH.

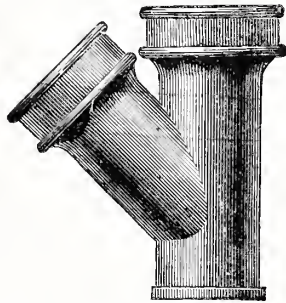


Fig. 1156.

Fig.	Size.	Standard.	Ex. Heavy.	Size.	Standard.	Ex. Heavy.
1156.	2x2 in.	\$0.60	.80	8x8 in.	\$5.00	8.00
1156.	3x3 "	.80	1.25	8x6 "		
1156.	3x2 "			8x5 "		
1156.	4x4 "	1.20	1.60	8x4 "		
1156.	4x3 "			8x3 "	7.00	11.00
1156.	4x2 "			8x2 "		
1156.	5x5 "			10x10 "		
1156.	5x4 "	1.60	2.25	10x8 "		
1156.	5x3 "			10x6 "	7.00	11.00
1156.	5x2 "			10x5 "		
1156.	6x6 "			10x4 "		
1156.	6x5 "	2.00	3.25	10x3 "		
1156.	6x4 "			10x2 "		
1156.	6x3 "					
1156.	6x2 "					

## Y BRANCH WITH SIDE INLET.

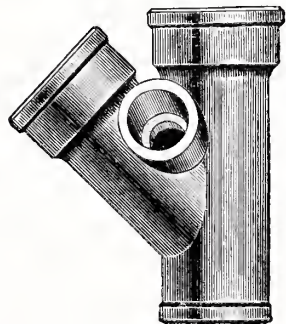


Fig. 1157.

## RIGHT OR LEFT.

With 2-inch Inlet.				With 2-inch Inlet.			
Fig.	Size.	Standard.	Ex. Heavy.	Size.	Standard.	Ex. Heavy.	
1157.	4x4 in.	\$1.80	2.20	6x6 in.	\$2.60	3.85	
1157.	4x3 "			6x5 "			
1157.	4x2 "			6x4 "			
1157.	5x5 "			6x3 "			
1157.	5x4 "	2.20	2.85	6x2 "			
1157.	5x3 "						
1157.	5x2 "						

SOIL PIPE FITTINGS—CONTINUED.

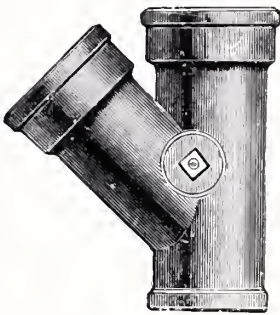


Fig. 1158.

Y BRANCH WITH TRAP SCREW ON EITHER SIDE.

Fig.	Size.						Standard.	Ex. Heavy.
1158.	4 x 4 inch, with 3-inch Brass Trap Screw							
1158.	4 x 3 "	"	3	"	"	"	\$3.20	3.60
1158.	4 x 2 "	"	3	"	"	"		
1158.	5 x 5 "	"	3	"	"	"		
1158.	5 x 4 "	"	3	"	"	"	3.60	4.25
1158.	5 x 3 "	"	3	"	"	"		
1158.	5 x 2 "	"	3	"	"	"		
1158.	6 x 6 "	"	4	"	"	"	4.25	5.50
1158.	6 x 5 "	"	4	"	"	"		
1158.	6 x 4 "	"	4	"	"	"		
1158.	6 x 3 "	"	4	"	"	"		
1158.	6 x 2 "	"	4	"	"	"		

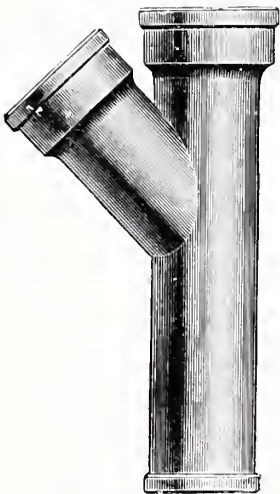


Fig. 1159.

LONG Y BRANCH.

Fig.	Size.						Standard.	Ex. Heavy.
1159.	4 x 4 inch, 24 inches in Clear . . . . .						\$2.50	3.50
"	1159. 4 x 4 "	30	"	"	"		3.00	4.75
"	1159. 4 x 4 "	36	"	"	"		3.50	5.25
"	1159. 5 x 4 "	24	"	"	"		3.25	4.50
"	1159. 5 x 4 "	30	"	"	"		4.00	5.50
"	1159. 5 x 4 "	36	"	"	"		4.75	6.75
"	1159. 6 x 4 "	24	"	"	"		4.25	6.00
"	1159. 6 x 4 "	30	"	"	"		5.25	7.25
"	1159. 6 x 4 "	36	"	"	"		6.25	9.00

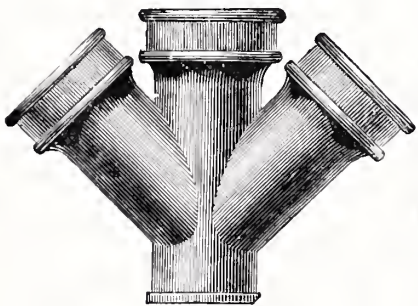


Fig. 1160.

DOUBLE Y BRANCH—Fig. 1160.

Size.	Standard.	Ex. Heavy.		Standard.	Ex. Heavy.
2 x 2 inch	\$1.00	1.25	8 x 8 inch	\$6.00	9.00
3 x 3 "	1.25	1.60	8 x 6 "		
3 x 2 "			8 x 5 "		
4 x 4 "	1.65	2.00	8 x 4 "		
4 x 3 "			8 x 3 "	9.00	14.00
4 x 2 "			8 x 2 "		
5 x 5 "	2.25	3.00	10 x 10 "		
5 x 4 "			10 x 8 "		
5 x 3 "			10 x 6 "		
5 x 2 "			10 x 5 "		
6 x 6 "	3.00	4.00	10 x 4 "		
6 x 5 "			10 x 3 "		
6 x 4 "			10 x 2 "		
6 x 3 "					
6 x 2 "					

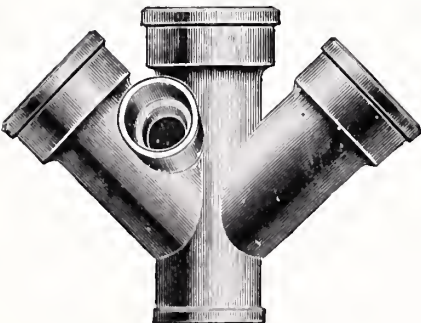


Fig. 1161.

DOUBLE Y BRANCH WITH SIDE INLET.

Fig.	Size.					Standard.	Ex. Heavy.
1161.	4 x 4 inch, with 2-inch Outlet,						
"	1161. 4 x 3 "	"	2	"	"	\$2.25	2.50
"	1161. 4 x 2 "	"	2	"	"		
"	1161. 5 x 5 "	"	2	"	"	2.85	3.60
"	1161. 5 x 4 "	"	2	"	"		
"	1161. 5 x 3 "	"	2	"	"		
"	1161. 5 x 2 "	"	2	"	"	3.60	4.60
"	1161. 6 x 6 "	"	2	"	"		
"	1161. 6 x 5 "	"	2	"	"		
"	1161. 6 x 4 "	"	2	"	"		
"	1161. 6 x 3 "	"	2	"	"		
"	1161. 6 x 2 "	"	2	"	"		



# SOIL PIPE FITTINGS—CONTINUED.

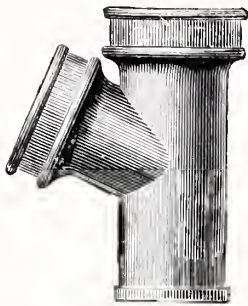


Fig. 1162.

## HALF Y BRANCH.

Fig.	Size.	Standard.	Ex. Heavy.	Size.	Standard.	Ex. Heavy.
1162.	2 x 2 inch	\$0.60	.80	6 x 6 inch	\$2.00	3.25
1162.	3 x 3 "	.80	1.25	6 x 5 "		
1162.	3 x 2 "			6 x 4 "		
1162.	4 x 4 "	1.20	1.60	6 x 3 "		
1162.	4 x 3 "			6 x 2 "	5.00	8.00
1162.	4 x 2 "	1.60	2.25	8 x 8 "		
1162.	5 x 5 "			8 x 6 "		
1162.	5 x 4 "			8 x 5 "		
1162.	5 x 3 "			8 x 4 "		
1162.	5 x 2 "			8 x 2 "		

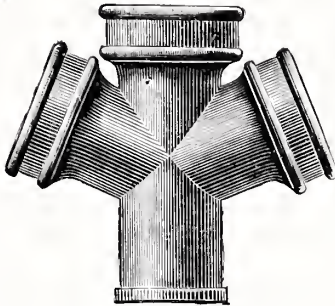


Fig. 1163.

## DOUBLE HALF Y BRANCH.

Fig.	Size.	Standard.	Ex. Heavy.	Size.	Standard.	Ex. Heavy.
1163.	2 x 2 inch	\$1.00	1.25	6 x 6 inch	\$3.00	4.00
1163.	3 x 3 "	1.25	1.60	6 x 5 "		
1163.	3 x 2 "			6 x 4 "		
1163.	4 x 4 "	1.65	2.00	6 x 3 "		
1163.	4 x 3 "			6 x 2 "	6.00	9.00
1163.	4 x 2 "	2.25	3.00	8 x 8 "		
1163.	5 x 5 "			8 x 6 "		
1163.	5 x 4 "			8 x 5 "		
1163.	5 x 3 "			8 x 4 "		
1163.	5 x 2 "			8 x 2 "		

## DOUBLE ANGLE Y BRANCH. VENTILATING BRANCH. T BRANCH WITH HAND HOLE FOR CLEANING OUT.

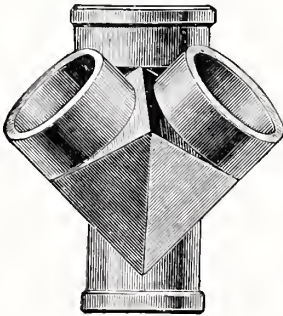


Fig. 1164.

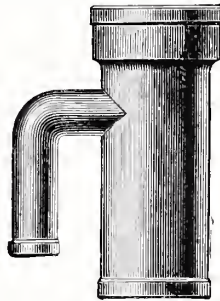


Fig. 1165.

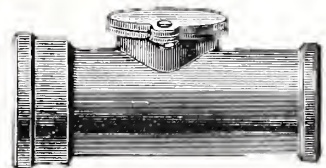


Fig. 1166.

Fig.	Size.	Standard.	Ex. Heavy.
Fig. 1164.	Size, 4 x 4 inch	\$3.50	4.50
" 1164.	" 5 x 4 "	4.50	5.75
" 1164.	" 6 x 4 "	5.50	7.50
" 1165.	" 2 x 2 "	.80	1.25
" 1165.	" 3 x 2 "	1.25	1.75
" 1165.	" 4 x 2 "	1.50	2.00
" 1165.	" 5 x 2 "	2.00	2.75
" 1165.	" 5 x 4 "	2.00	2.75
" 1165.	" 6 x 4 "	3.00	4.00
" 1165.	" 8 x 4 "	6.00	8.50
" 1165.	" 8 x 5 "	6.00	8.50
" 1166.	" 2 x 2 "	.75	1.00
" 1166.	" 3 x 3 "	1.00	1.50
" 1166.	" 4 x 4 "	1.25	1.75
" 1166.	" 5 x 5 "	1.75	2.25
" 1166.	" 6 x 6 "	2.25	3.00
" 1166.	" 8 x 8 "	5.00	7.50



SOIL PIPE FITTINGS—CONTINUED.

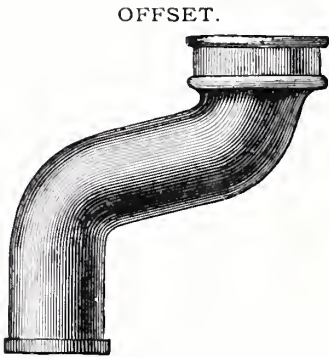


Fig. 1167.

OFFSET.		Fig.		Size to Offset.	Standard.	Extra Heavy.	Size to Offset.	Standard.	Extra Heavy.
		1167.	2x 2 inch	. . .	\$0.40	.60	4x12 inch	\$.140	1.80
		1167.	2x 4 "	. . .	.50	.90	4x14 "	. . .	1.65
		1167.	2x 6 "	. . .	.60	1.00	4x16 "	. . .	1.80
		1167.	2x 8 "	. . .	.70	1.10	4x18 "	. . .	2.15
		1167.	2x10 "	. . .	.80	1.20	4x20 "	. . .	2.25
		1167.	2x12 "	. . .	.85	1.25	5x 4 "	. . .	1.40
		1167.	3x 4 "	. . .	.75	1.10	5x 6 "	. . .	1.60
		1167.	3x 6 "	. . .	.80	1.20	5x 8 "	. . .	1.80
		1167.	3x 8 "	. . .	.90	1.35	5x12 "	. . .	2.00
		1167.	3x10 "	. . .	.95	1.40	5x16 "	. . .	2.40
		1167.	3x12 "	. . .	1.00	1.45	6x 4 "	. . .	2.00
		1167.	4x 4 "	. . .	.85	1.25	6x 6 "	. . .	2.25
		1167.	4x 6 "	. . .	1.00	1.40	6x 8 "	. . .	2.40
		1167.	4x 8 "	. . .	1.15	1.50	6x10 "	. . .	2.60
		1167.	4x10 "	. . .	1.25	1.60	6x12 "	. . .	2.75
									4.00

OFFSET, WITH 2-INCH  
INLET.

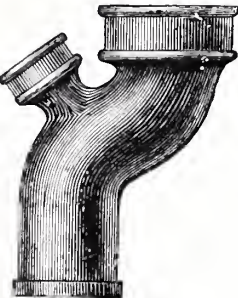


Fig. 1168.

		Fig.	Size to Offset.	Standard.	Ex. Heavy.
		1168.	4x 4 inch	\$.115	1.55
		1168.	4x 6 "	1.30	1.70
		1168.	4x 8 "	1.45	1.80
		1168.	4x10 "	1.55	1.90
		1168.	4x12 "	1.70	2.10
		1168.	4x14 "	1.95	2.30
		1168.	4x16 "	2.10	2.55
		1168.	4x20 "	2.55	3.80



Fig. 1169.

DOUBLE HUB.		Fig.	Size.	Standard.	Extra Heavy.
		1169.	2 inch	\$0.30	.40
		1169.	3 "	.45	.55
		1169.	4 "	.65	.75
		1169.	5 "	.75	.90
		1169.	6 "	.80	1.15
		1169.	8 "	1.50	3.50
		1169.	10 "	2.50	4.00

SINGLE HUB.



Fig. 1170.

		Fig.	Size.	Standard.	Extra Heavy.
		1170.	2 inch	\$0.25	.35
		1170.	3 "	.35	.40
		1170.	4 "	.40	.50
		1170.	5 "	.60	.75
		1170.	6 "	.75	1.00
		1170.	8 "	1.40	3.00
		1170.	10 "	2.50	4.00

## SOIL PIPE FITTINGS—CONTINUED.

## REDUCER.

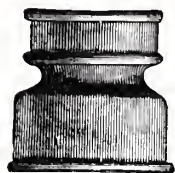


Fig. 1171.

	Size.	Standard.	Ex. Heavy.
Fig. 1171.	3 inches to 2 inches . . . . .	\$0.45	.55
" 1171.	4 " " 2 " " . . . . .	.50	.60
" 1171.	5 " " 2 " " . . . . .	.70	.80
" 1171.	5 " " 3 " " . . . . .		
" 1171.	5 " " 4 " " . . . . .	.80	.90
" 1171.	6 " " 2 " " . . . . .		
" 1171.	6 " " 3 " " . . . . .		
" 1171.	6 " " 4 " " . . . . .	1.60	2.20
" 1171.	8 " " 3 " " . . . . .		
" 1171.	8 " " 4 " " . . . . .		
" 1171.	8 " " 5 " " . . . . .		
" 1171.	8 " " 6 " " . . . . .		

## INCREASER.

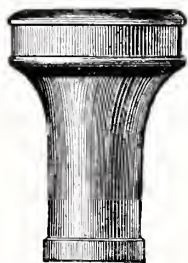


Fig. 1172.

	Size.	Standard.	Ex. Heavy.
Fig. 1172.	2 x 3 inch . . . . .	\$0.70	1.00
" 1172.	2 x 4 " . . . . .	.75	1.10
" 1172.	2 x 5 " . . . . .	.80	1.15
" 1172.	2 x 6 " . . . . .	.85	1.30
" 1172.	3 x 4 " . . . . .	.90	1.25
" 1172.	3 x 5 " . . . . .	1.00	1.40
" 1172.	3 x 6 " . . . . .	1.20	1.70
" 1172.	4 x 5 " . . . . .	1.15	1.60
" 1172.	4 x 6 " . . . . .	1.25	1.75
" 1172.	5 x 6 " . . . . .	1.35	1.95

STRAIGHT  
SLEEVE.

Fig. 1173.

	Size.	Standard.	Ex. Heavy.
Fig. 1173.	2 inch . . . . .	\$0.30	.40
" 1173.	3 " . . . . .	.45	.55
" 1173.	4 " . . . . .	.65	.75
" 1173.	5 " . . . . .	.75	.90
" 1173.	6 " . . . . .	.80	1.15
" 1173.	8 " . . . . .	1.50	3.50
" 1173.	10 " . . . . .	2.50	4.50

## THIMBLE.



Fig. 1174.

	Size.	Plain.	Galvanized.
Fig. 1174.	2 inch . . . . .	\$0.15	.25
" 1174.	3 " . . . . .	.25	.40
" 1174.	4 " . . . . .	.30	.50
" 1174.	5 " . . . . .	.35	.60
" 1174.	6 " . . . . .	.45	.75

SOIL PIPE FITTINGS—CONTINUED.

S TRAP WITH HAND HOLE  
AND COVER.

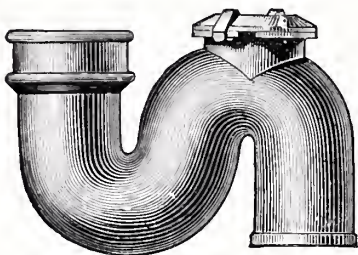


Fig. 1175.

Fig.	Size.	Standard.	Ex. Heavy.
1175.	2 inch . . . . .	\$0.80	1.25
1175.	3 " . . . . .	1.25	2.00
1175.	4 " . . . . .	1.75	2.75
1175.	5 " . . . . .	3.00	4.00
1175.	6 " . . . . .	4.00	5.50

S TRAP WITH HAND HOLE, COVER  
AND HEEL INLET.

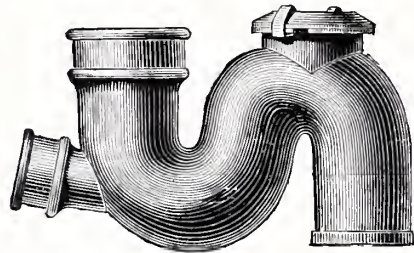


Fig. 1176.

Fig.	Size.	Standard.	Ex. Heavy.
1176.	4 inch, S Trap . . . . .	\$2.25	3.25
1176.	4 " $\frac{1}{2}$ S " . . . . .	2.25	3.25
1176.	4 " $\frac{3}{4}$ S " . . . . .	2.25	3.25

S TRAP WITH VENT ON TOP  
AND TRAP SCREW ON SIDE.

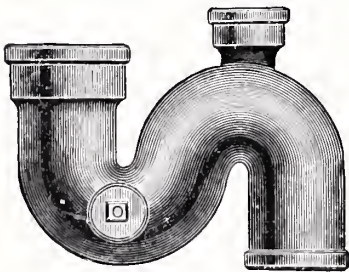


Fig. 1177.

Fig.	Size.	Stand- ard.	Ex. Heavy.
1177.	2 inch, with 2-inch Vent and $1\frac{1}{2}$ -inch Brass Screw, . . . . .	\$3.30	3.75
1177.	3 " " 2 " " 2 " " . . . . .	3.75	4.50
1177.	4 " " 2 " " 3 " " . . . . .	4.25	5.25
1177.	5 " " 2 " " 3 " " . . . . .	5.50	6.50
1177.	6 " " 2 " " 4 " " . . . . .	6.50	8.00

$\frac{3}{4}$  S and  $\frac{1}{2}$  S Trap same prices.

S TRAP WITH VENT ON  
TOP.

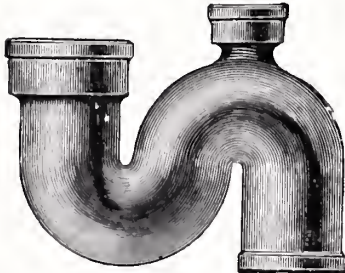


Fig. 1178.

Fig.	Size.	Standard.	Ex. Heavy.
1178.	2 inch, with 2-inch Vent . . . . .	\$0.80	1.25
1178.	3 " " 2 " " . . . . .	1.25	2.00
1178.	4 " " 2 " " . . . . .	1.75	2.75
1178.	5 " " 2 " " . . . . .	3.00	4.00
1178.	6 " " 2 " " . . . . .	4.00	5.50

# SOIL PIPE FITTINGS—CONTINUED.

## THREE-QUARTER S TRAP WITH HAND HOLE AND COVER.

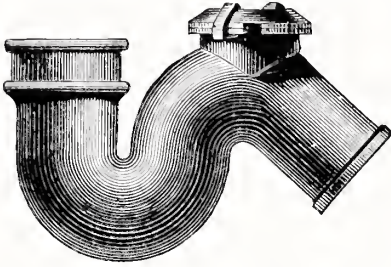


Fig. 1179.

Fig.	Size.	Standard.	Ex. Heavy.
1179.	2 inch . . . . .	\$0.80	1.25
1179.	3 " . . . . .	1.25	2.00
1179.	4 " . . . . .	1.75	2.75
1179.	5 " . . . . .	3.00	4.00
1179.	6 " . . . . .	4.00	5.50

## HALF S TRAP WITH OR WITHOUT HAND HOLE AND COVER.

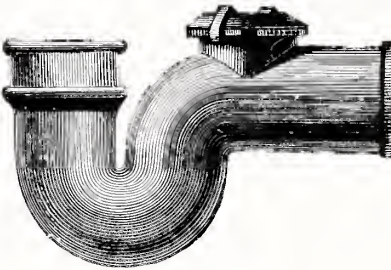


Fig. 1180.

Fig.	Size.	Standard.	Ex. Heavy.
1180.	2 inch . . . . .	\$0.80	1.25
1180.	3 " . . . . .	1.25	2.00
1180.	4 " . . . . .	1.75	2.75
1180.	5 " . . . . .	3.00	4.00
1180.	6 " . . . . .	4.00	5.50

## HALF S TRAP WITH HAND HOLE, COVER AND SIDE INLET.

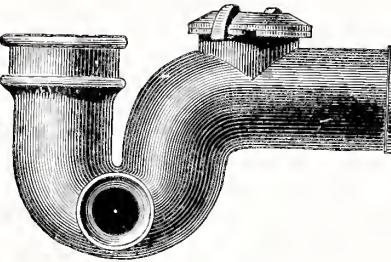


Fig. 1181.

Fig.	Size.	Standard.	Ex. Heavy.
1181.	4 inch, $\frac{1}{2}$ S Trap . . . . .	\$2.25	3.25
1181.	4 " $\frac{3}{4}$ S Trap . . . . .	2.25	3.25
1181.	4 " S Trap . . . . .	2.25	3.25

## RUNNING TRAP WITH HAND HOLE AND COVER.

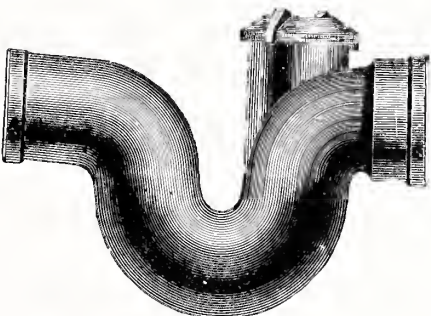


Fig. 1182.

Fig.	Size.	Standard.	Ex. Heavy.
1182.	2 inch . . . . .	\$0.80	1.25
1182.	3 " . . . . .	1.25	1.75
1182.	4 " . . . . .	1.75	2.75
1182.	5 " . . . . .	3.00	4.00
1182.	6 " . . . . .	4.00	5.50
1182.	8 " . . . . .	9.00	12.00



# SOIL PIPE FITTINGS—CONTINUED.

RUNNING TRAP WITH HUB FOR VENT.

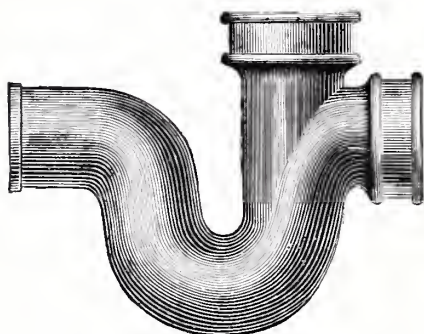


Fig. 1183.

	Size.	Standard.	Ex. Heavy.
Fig. 1183.	4 inch, with 4-inch Vent .	\$1.75	2.75
" 1183.	5 " " 4 " "	3.00	4.00
" 1183.	6 " " 4 " "	4.00	5.50
" 1183.	8 " " 6 " "	9.00	12.00
" 1183.	10 " " 6 " "	. .	20.00

RUNNING TRAP WITH HUBS FOR DOUBLE VENT.

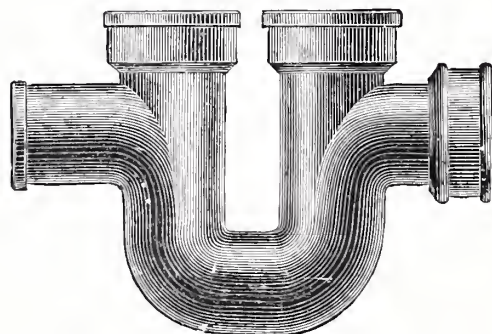


Fig. 1184.

	Size.	Standard.	Ex. Heavy.
Fig. 1184.	4 inch, with 4-inch Vents, \$2.75		3.75
" 1184.	5 " " 4 " "	4.00	5.00
" 1184.	6 " " 4 " "	5.00	6.50
" 1184.	8 " " 6 " "	11.00	14.00
" 1184.	10 " " 6 " "	. .	22.00

VENTILATING CAP.



Fig. 1185.

PIPE BAND.

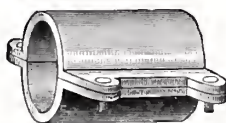


Fig. 1186.

PIPE BAND WITH OUTLET.

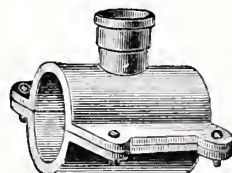


Fig. 1187.

	Size.	Short.	Long.
Fig. 1185.	2 inch . . . . .	\$0.40	.75
" 1185.	3 " . . . . .	.60	1.05
" 1185.	4 " . . . . .	.80	1.35
" 1185.	5 " . . . . .	1.10	1.85
" 1185.	6 " . . . . .	1.50	2.40

	Size.	Standard.	Ex. Heavy.
Fig. 1186.	2 inch . . . . .	\$0.45	.90
" 1186.	3 " . . . . .	.55	1.00
" 1186.	4 " . . . . .	.70	1.50
" 1186.	5 " . . . . .	1.00	2.00
" 1186.	6 " . . . . .	1.40	2.75
" 1186.	8 " . . . . .	2.25	4.00

	Size.	Standard.	Ex. Heavy.
Fig. 1187.	2 x 2 inch . . . . .	\$0.75	1.50
" 1187.	3 x 3 " }	.90	1.75
" 1187.	3 x 2 " }		
" 1187.	4 x 4 " }	1.10	2.00
" 1187.	4 x 3 " }		
" 1187.	4 x 2 " }		
" 1187.	5 x 5 " }		
" 1187.	5 x 4 " }	1.45	2.75
" 1187.	5 x 3 " }		
" 1187.	5 x 2 " }		
" 1187.	6 x 6 " }		
" 1187.	6 x 5 " }		
" 1187.	6 x 4 " }	1.90	3.50
" 1187.	6 x 3 " }		
" 1187.	6 x 2 " }		

# SOIL PIPE FITTINGS—CONTINUED.

PLUG OR STOPPER.



Fig. 1188.

T SADDLE HUB.

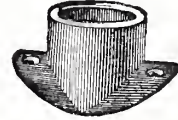


Fig. 1189.

Fig.	Size.	Standard.	Extra Heavy.	Fig.	Size.	Standard.	Extra Heavy.
1188.	2 inch . . . . .	\$0.15	.25	1189.	2 x 2 inch . . . . .	\$0.30	.40
1188.	3 " . . . . .	.25	.35	1189.	3 x 3 " . . . . .	.50	.65
1188.	4 " . . . . .	.30	.40	1189.	3 x 2 " . . . . .	.50	.65
1188.	5 " . . . . .	.35	.50	1189.	4 x 4 " . . . . .	.60	.80
1188.	6 " . . . . .	.50	.65	1189.	4 x 2 " . . . . .	.60	.80
1188.	8 " . . . . .	1.20	1.50	1189.	4 x 3 " . . . . .	.60	.80
1188.	10 " . . . . .	2.00	3.00	1189.	5 x 5 " . . . . .	.75	1.00
				1189.	5 x 4 " . . . . .	.75	1.00
				1189.	5 x 3 " . . . . .	.75	1.00
				1189.	5 x 2 " . . . . .	.75	1.00
				1189.	6 x 6 " . . . . .	1.10	1.40
				1189.	6 x 5 " . . . . .	1.10	1.40
				1189.	6 x 4 " . . . . .	1.10	1.40
				1189.	6 x 3 " . . . . .	1.10	1.40
				1189.	6 x 2 " . . . . .	1.10	1.40

PIPE REST.



Fig. 1190.

Fig.	Size.	Standard.	Extra Heavy.
1190.	2 inch . . . . .	\$0.30	.40
1190.	3 " . . . . .	.40	.55
1190.	4 " . . . . .	.50	.65
1190.	5 " . . . . .	.60	.80
1190.	6 " . . . . .	.70	1.00
1190.	8 " . . . . .	1.10	1.75
1190.	10 " . . . . .	1.75	2.50

HALF Y SADDLE HUB.

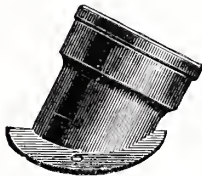


Fig. 1191.

Y SADDLE HUB.

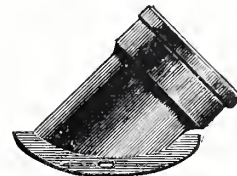


Fig. 1192.

Fig.	Size.	Standard.	Extra Heavy.	Fig.	Size.	Standard.	Extra Heavy.
1191.	2 inch . . . . .	\$0.35	.45	1192.	2 inch . . . . .	\$0.35	.45
1191.	3 " . . . . .	.55	.70	1192.	3 " . . . . .	.55	.70
1191.	4 " . . . . .	.70	.90	1192.	4 " . . . . .	.70	.90
1191.	5 " . . . . .	.90	1.15	1192.	5 " . . . . .	.90	1.15
1191.	6 " . . . . .	1.25	1.55	1192.	6 " . . . . .	1.25	1.55

BARRETT'S TRAPS AND CLEANOUTS.

BARRETT'S SEWER AND TIDE TRAPS.

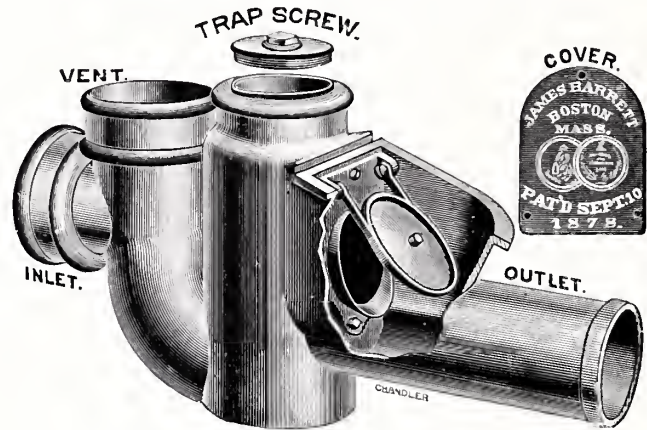


Fig. 1193.

Fig. 1193.	4 inch, Standard or Heavy		\$11.00
" 1193.	5 " " "		14.00
" 1193.	6 " " "		15.00
" 1193.	8 " " "		50.00
" 1193.	10 " " "		75.00
For 6-inch Tile Pipe			15.00
" 9 " " "			75.00

BARRETT'S IRON CLEANOUTS.

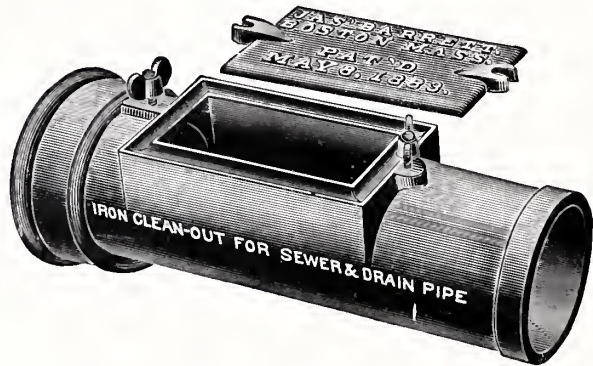


Fig. 1194.

		Standard.	Heavy.
Fig. 1194.	2 inch	\$1.00	1.50
" 1194.	3 "	1.35	2.50
" 1194.	4 "	1.75	3.50
" 1194.	5 "	2.75	5.00
" 1194.	6 "	3.75	6.00
" 1194.	8 "		10.00
" 1194.	10 "		15.00

Every Cleanout furnished with a Rubber Gasket and guaranteed to stand all air or water tests.

# “PERFECTION” CLEANOUTS.

RUNNING.

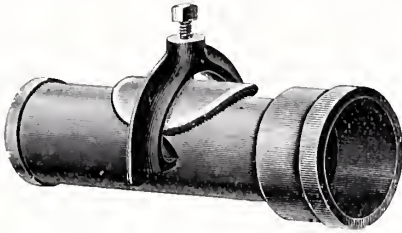


Fig. 1195.

SIZE . . . . .	INCHES.
Fig. 1195. Standard . . . . .	2
“ 1195. Extra Heavy . . . . .	1.50



Fig. 1196.

2	3	4	5	6
\$1.00	1.35	1.75	2.75	3.75
1.50	2.50	3.50	5.00	6.00

ELBOW, SIDE OUTLET.

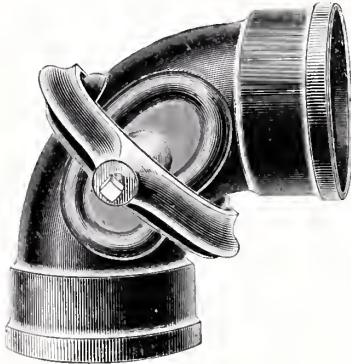


Fig. 1197.

SIZE . . . . .	INCHES.
Fig. 1197. Standard . . . . .	2
“ 1197. Extra Heavy . . . . .	1.55
“ 1198. Standard . . . . .	2.05
“ 1198. Extra Heavy . . . . .	2.75

ELBOW CLEANOUT, HEEL OUTLET.



Fig. 1198.

2	3	4	5	6
\$1.55	2.00	2.50	3.90	5.40
2.05	3.15	4.40	6.25	7.50
1.25	1.60	2.00	3.30	4.60
1.75	2.75	3.90	5.50	6.50

# “PERFECTION” ROOF COLLAR.

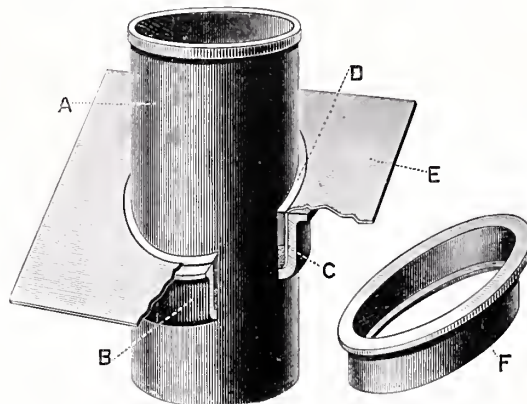


Fig. 1199.

SIZE . . . . .	INCHES.	2	3	4	5	6
Fig. 1199. No. 1, Flat Roof ; No. 2, 15 deg. ; No. 3, 30 deg. ; No. 4, 45 deg. Each.		\$0.40	.50	.60	1.00	1.50



SOIL PIPE TEST PLUGS.

THE CLIMAX SOIL PIPE TEST PLUG.

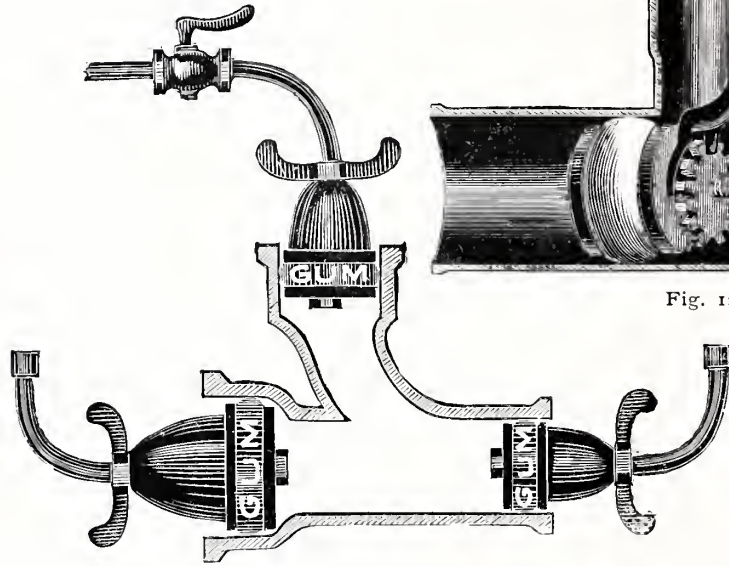


Fig. 1200.

SPECIAL PLUG.

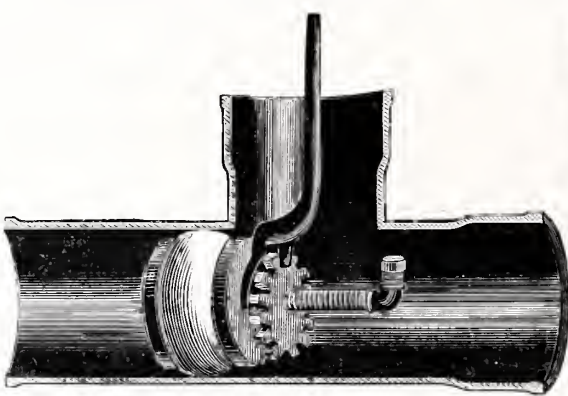


Fig. 1201.

WRENCH.




Fig. 1202.

SIZE . . . . .	INCHES.	2	3	4	5	6	7	8	9	10
Figs. 1200 and 1201.	Price . . . . .	Each, \$1.00	1.25	1.50	2.00	2.50	3.50	4.50	5.75	7.00
Extra Rubbers . . . . .		.25	.50	.70	.90	1.20	1.75			

Wrenches for Special Plug, 20 cents each.

DESPER'S DOUBLE SOIL PIPE TEST PLUG.




Fig. 1203.

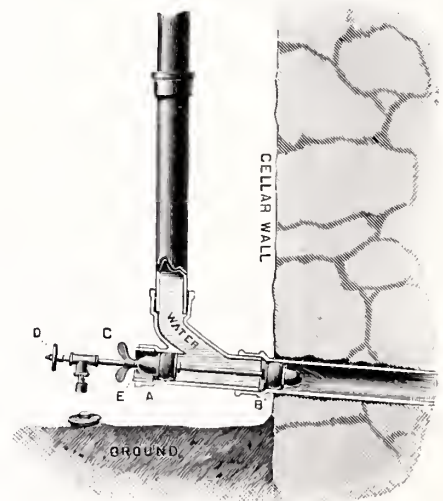


Fig. 1204.

SIZE . . . . .	INCHES.	2	3	4	5	6	7	8
Figs. 1203 and 1204.	Price . . . . .	\$2.50	3.50	4.75	6.00	7.50	9.00	11.00

## CAST IRON SINKS.

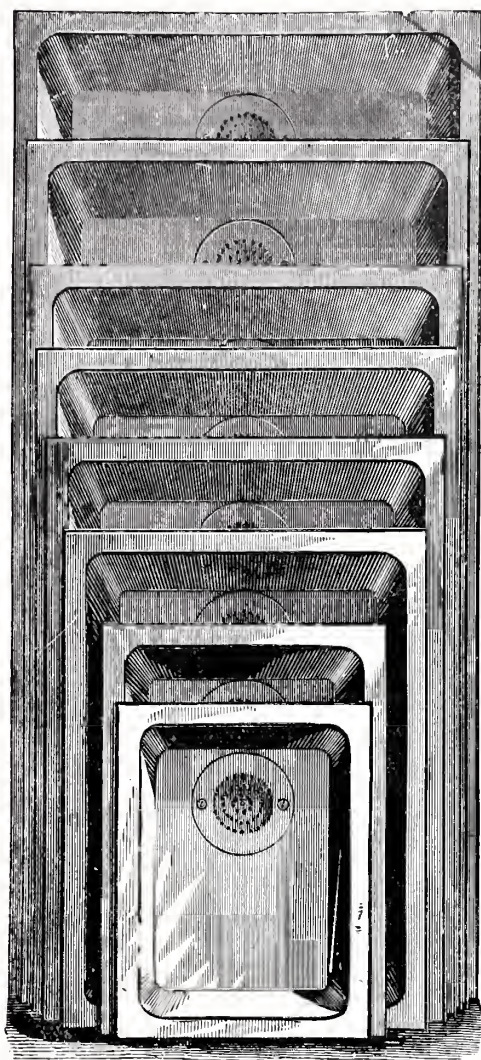


Fig. 1205.

Sizes.				Plain.	Galv'd.	Enam.
Fig. 1205.	16 x 12.	6	in. deep.	\$1.10	2.30	4.50
"	1205. 18	12.	6 " "	1.25	2.60	4.75
"	1205. 16	16.	6 " "	1.60	3.25	5.25
"	1205. 22	14.	6 " "	1.60	3.30	5.75
"	1205. 23	15.	6 " "	1.70	3.40	6.25
"	1205. 25	15.	6 " "	1.75	3.60	6.50
"	1205. 20	12.	6 " "	1.50	3.10	5.25
"	1205. 20	14.	6 " "	1.50	3.20	6.00
"	1205. 24	14.	6 " "	1.70	3.75	6.25
"	1205. 24	16.	6 " "	1.80	4.00	6.50
"	1205. 24	18.	6 " "	2.10	4.30	7.00
"	1205. 25	17.	6 " "	2.10	4.30	7.00
"	1205. 27	15.	6 " "	2.00	4.25	7.25
"	1205. 24	20.	6 " "	2.40	5.00	7.50
"	1205. 28	17.	6 " "	2.20	4.50	7.50
"	1205. 28	20.	6 " "	2.70	5.50	8.00
"	1205. 30	16.	6 " "	2.25	4.75	7.75
"	1205. 30	18.	6 " "	2.50	5.10	8.50
"	1205. 30	20.	6 " "	3.00	6.25	9.00
"	1205. 32	18.	6 " "	3.00	6.25	9.25
"	1205. 32	21.	6 " "	3.40	7.20	9.75
"	1205. 36	18.	6 " "	3.00	6.50	9.50
"	1205. 36	21.	6 " "	3.70	7.75	10.50
"	1205. 38	20.	6 " "	3.80	8.00	11.00
"	1205. 42	22.	6 " "	4.25	9.00	12.00
"	1205. 48	20.	6 " "	5.30	11.50	13.25
"	1205. 48	23.	6 " "	5.75	12.25	15.00
"	1205. 24	14.	8 " "	2.50	5.25	8.00
"	1205. 30	24.	8 " "	5.00	10.50	13.00
"	1205. 50	24.	6½ " "	7.50	16.00	18.00
"	1205. 50	26.	6½ " "	8.00	17.00	20.00
"	1205. 62	22.	8 " "	10.75	22.00	26.00
"	1205. 76	22.	7 " "	15.00	32.00	35.00

## SHALLOW SINKS.

Sizes.	Plain.	Galvanized.	Enameled.
24 x 15½, 4 inches deep . . . . .	\$1.40	3.00	5.75
40 17½, 4 " " . . . . .	2.10	4.25	7.50
36 19, 4 " " . . . . .	2.60	5.50	9.25
42 20½, 4 " " . . . . .	3.40	7.00	11.00
48 22, 4 " " . . . . .	4.10	8.75	13.00

CAST IRON SINKS—CONTINUED.

CORNER SINK.

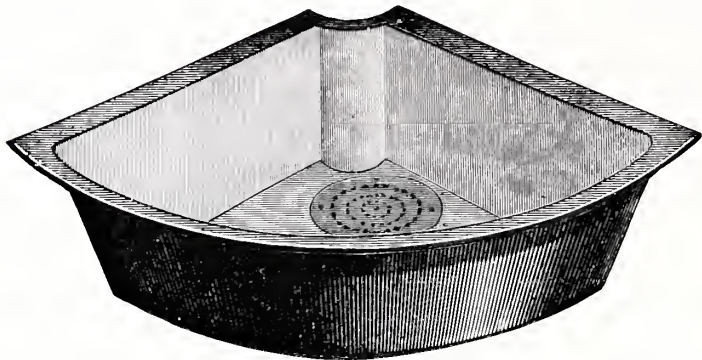


Fig. 1206.

	No.	Back. Inches.	Width. Inches.	Depth. Inches.	Plain.	Galvanized.	Enameled.
Fig. 1206	1	17	25	6	\$1.25	2.75	6.00
" 1206	2	20	28	6	1.75	3.50	7.00
" 1206	3	22	31	6	2.10	4.20	8.00

HALF-CIRCLE SINK.

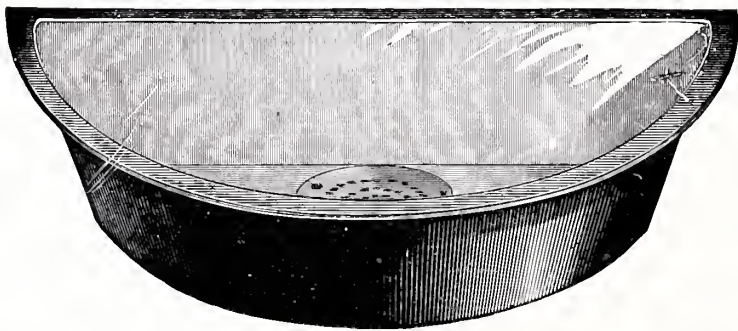


Fig. 1207.

	No.	Back. Inches.	Width. Inches.	Depth. Inches.	Plain.	Galvanized.	Enameled.
Fig. 1207	1	24	14	6	\$1.50	3.25	6.00
" 1207	2	27	15	6	1.80	3.90	7.00
" 1207	3	28	16	6	2.00	4.00	7.75
" 1207	4	31	17	6	2.25	4.75	9.00

For Overflow, add \$1.00 to price of Plain Sinks.



## ORNAMENTAL IRON SINKS.

WITH BACK, AIR CHAMBERS, PIPES AND COUPLINGS, ON LEGS.



Fig. 1208.

SIZE . . . . . INCHES.	30 x 22	36 x 22	42 x 22	48 x 22
Fig. 1208. Plain . . . . .	\$13.50	15.25	17.00	18.75
“ 1208. Galvanized . . . . .	23.00	26.00	29.00	32.00
“ 1208. Enameled . . . . .	27.50	31.50	35.50	39.50

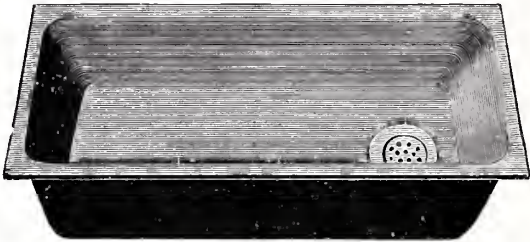
In the above Sink the waste passes through the leg of the Sink, and can be either right or left as desired. If the waste cannot be trapped under the floor, the Strainer can be furnished in centre of Sink.

We can furnish these Sinks with brackets instead of legs if so desired. Deduct from above List, for Plain, \$1.50 ; for Galvanized, \$3.00 ; for Enameled, \$1.50.



# WROUGHT STEEL SINKS.

“COLUMBUS” AND “NEW ERA” WROUGHT STEEL SINKS.



SQUARE. Fig. 1209.

	Size.		Painted.	Galvanized.	Enameled.
Fig. 1209.	16 x 24, 6 inches deep . . . . .		\$1.80	4.00	6.50
“ 1209.	18 30, 6 “ . . . . .		2.50	5.10	8.50
“ 1209.	18 36, 6 “ . . . . .		3.00	6.50	9.50
“ 1209.	20 30, 6 “ . . . . .		3.00	6.25	9.00
“ 1209.	20 36, 6 “ . . . . .		3.70	7.75	10.50
“ 1209.	20 40, 6 “ . . . . .		4.00	8.50	11.50

Sinks with Patent Overflow, each, 50 cents extra, net.



OVAL. Fig. 1210.

	Size.		With Overflow.	Without Overflow.
Fig. 1210.	14 x 20. Plain . . . . .		\$2.50	2.00
“ 1210.	14 20. Galvanized . . . . .		4.00	3.50
“ 1210.	14 20. Enameled . . . . .		6.00	5.50

SQUARE IRON SLOP SINK, PLAIN, GALVANIZED AND ENAMELED.

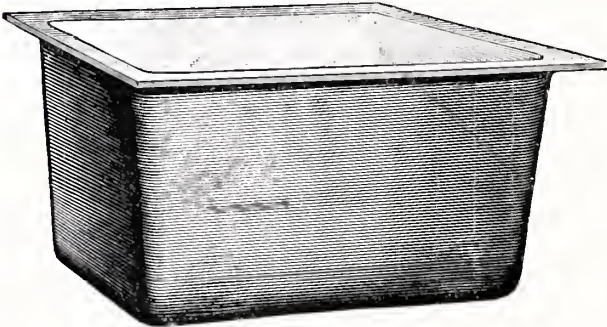


Fig. 1211.

	Size.		Plain.	Galvanized.	Enameled.
Fig. 1211.	16 x 16, 10 inches deep . . . . .		\$2.70	5.25	7.50
“ 1211.	20 14, 12 “ . . . . .		3.50	6.50	8.50
“ 1211.	20 16, 12 “ . . . . .		4.00	8.25	10.00
“ 1211.	24 20, 12 “ . . . . .		5.00	9.50	11.50
Add, if with Patent Overflow . . . . .			1.00	1.00	1.00
“ “ “ “ and Plug Strainer . . . . .			1.20	1.25	1.50

# SINK FIXTURES.

SINK BACK.

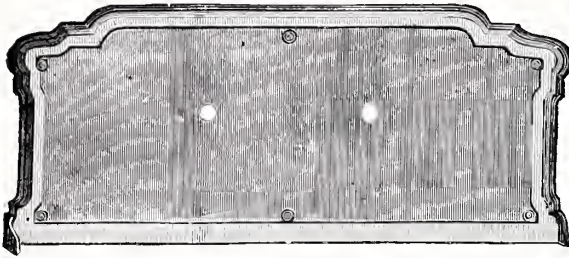


Fig. 1212.

Fig.	Size.	Plain.	Galvanized.	Enameled.
1212.	20 inches	\$1.25	2.25	3.25
1212.	22 "	1.35	2.50	3.40
1212.	23 "	1.40	2.70	3.50
1212.	24 "	1.50	2.80	3.70
1212.	25 "	1.55	2.90	4.25
1212.	27 "	1.70	3.25	4.50
1212.	28 "	1.80	3.50	4.75
1212.	30 "	2.00	4.00	5.00
1212.	32 "	2.25	4.25	5.25
1212.	36 "	2.75	5.00	6.00
1212.	38 "	3.00	5.50	6.50
1212.	42 "	3.50	6.00	7.00
1212.	48 "	4.25	7.00	8.00

SINK BRACKET.

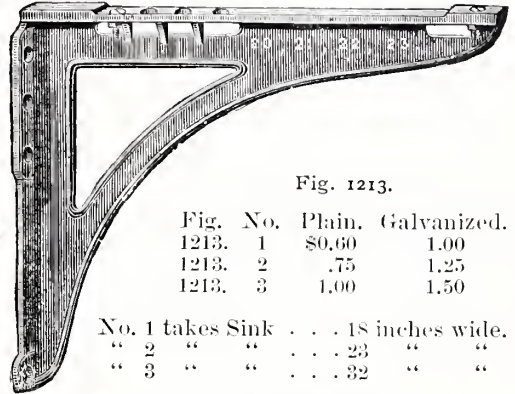


Fig. 1213.

Fig. No.	Plain.	Galvanized.
1213. 1	\$0.60	1.00
1213. 2	.75	1.25
1213. 3	1.00	1.50

No. 1 takes Sink . . . 18 inches wide.  
 " 2 " " . . . 23 " "  
 " 3 " " . . . 32 " "

SINK LEG.



Fig. 1214.

Fig. 1214.	Plain . . . . .	Each.	\$0.50
" 1214.	Galvanized . . . . .	"	1.00

## SINK BACKS WITH AIR CHAMBER.

Add to price of Plain Backs for each chamber with Pipe and Coupling, Plain. Galvanized. Enameled.  
 \$2.00 2.50 3.00  
 If Pipes and Couplings are not required, deduct 50 cents.

SOAP CUP.

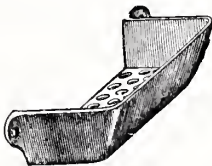


Fig. 1215.

SINK BOLT.



Fig. 1216.

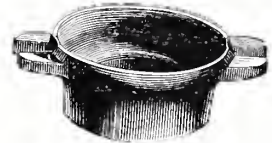
SINK COUPLING.  
EXTRA HEAVY, TAPPED  
FOR IRON PIPE.

Fig. 1217.

Fig.	Plain.	Galv.	Enam.
1215. Per doz.	\$2.50	4.00	6.00

Fig.	Per doz., Plain	Galv.	Enam.
1216. " 100	\$0.40	2.00	
1216. " doz., Nick'l Pl't'd	.75		

Fig.	Plain.	Galvanized.
1217 . . .	\$0.75	.90

OPEN SINK STRAINER.

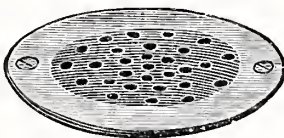


Fig. 1218.

PLUG SINK STRAINER.

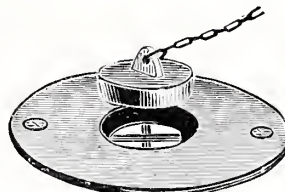


Fig. 1219.

SINK COUPLING.



Fig. 1220.

Fig.	Plain.	Galv.	Enam.
1218. Per doz.	\$1.50	2.60	3.00

Fig.	Plain.	Galv.	Enam.
1219. Per doz.	\$3.25	5.00	6.00

Fig.	Plain.	Galv.
1220. Per doz.	\$1.50	2.00

IRON WASH STANDS.

ON STANDARD, PATENT OVERFLOW, RUBBER PLUG AND  
BRASS COUPLING.

HALF-CIRCLE WASH STAND.



Fig. 1221.

CORNER WASH STAND.



Fig. 1222.

Fig. 1221.	Plain . . . . .	Each.	\$5.50
"	1221. Painted . . . . .	"	6.00
"	1221. Galvanized . . . . .	"	9.00
"	1221. Enameled Slab and Bowl, with Bronzed Standard . . . . .	"	9.50
Height to Front Slab, 27½ inches; height to top of Back, 32½ inches; length of Back, 19 inches.			

Fig. 1222.	Plain . . . . .	Each.	\$5.50
"	1222. Painted . . . . .	"	6.00
"	1222. Galvanized . . . . .	"	9.00
"	1222. Enameled Slab and Bowl, with Bronzed Standard . . . . .	"	9.50
Height to Front of Slab, 27½ inches; height to top of Back, 32½ inches; length of Side, 13½ inches.			



# SECTIONAL SLABS AND BOWLS.

WITH END PIECE ON RIGHT OR LEFT-HAND SIDE.



Fig. 1223.

Length of Back, 48 inches ; Height of Back,  $10\frac{1}{2}$  inches ; Width of Slabs, 19 inches ;  
Diameter of Bowls,  $12\frac{1}{2}$  inches.

Fig. 1223.	Plain . . . . .	Each.	\$13.50
" 1223.	Painted . . . . .	"	14.75
" 1223.	Galvanized . . . . .	"	22.50
" 1223.	Enameled . . . . .	"	29.00

## SECTIONAL SLABS AND BOWLS.

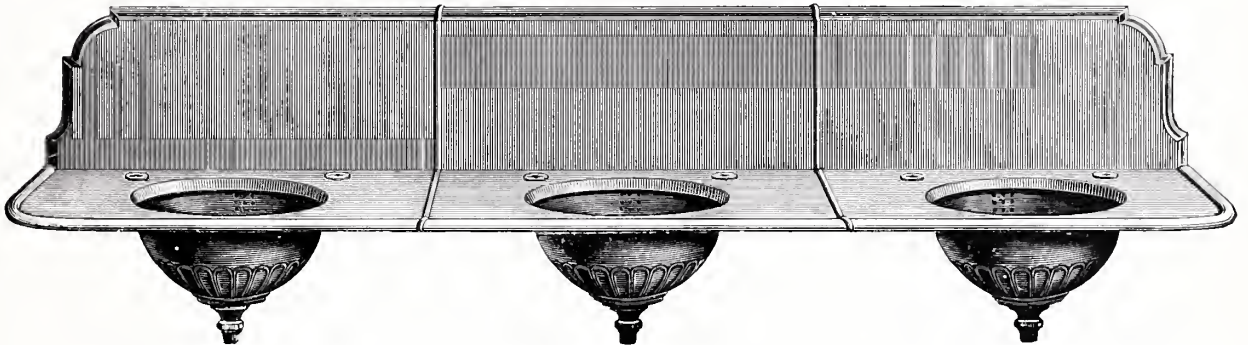


Fig. 1224.

Total Length, 72 inches ; Width of Slabs, 19 inches ; Height of Back,  $10\frac{1}{2}$  inches ;  
Diameter of Bowls,  $12\frac{1}{2}$  inches.

Fig. 1224.	Plain . . . . .	Each.	\$18.00
" 1224.	Painted . . . . .	"	19.50
" 1224.	Galvanized . . . . .	"	30.00
" 1224.	Enameled . . . . .	"	39.00

Plain Brackets, each, \$1.00. Galvanized Brackets, each, \$1.50.



COMBINED SLABS AND BOWLS.

WITH RUBBER PLUG AND BRASS COUPLING, PLAIN, PAINTED,  
GALVANIZED AND ENAMELED.



Fig. 1225.

Length of Sides, 12 inches.  
Diameter of Bowl, 11 inches.

Fig. 1225.	Plain . . . . .	Each.	\$3 00
" 1225.	Painted . . . . .	"	3 25
" 1225.	Galvanized . . . . .	"	4 00
" 1225.	Enameled . . . . .	"	4 50



Fig. 1226.

13 inches on Back.  
Diameter of Bowl, 11 inches.

Fig. 1226.	Plain . . . . .	Each.	\$3.00
" 1226.	Painted . . . . .	"	3 25
" 1226.	Galvanized . . . . .	"	4 00
" 1226.	Enameled . . . . .	"	4 50

HALF-CIRCLE SLAB AND BOWL.



Fig. 1227.

Length of Back, 19 inches.  
Height of Back, 5 inches.

Fig. 1227.	Plain . . . . .	Each.	\$3.50
" 1227.	Painted . . . . .	"	4 00
" 1227.	Galvanized . . . . .	"	5 50
" 1227.	Enameled . . . . .	"	7 50

CORNER SLAB AND BOWL.



Fig. 1228.

Length of Side, 13½ inches.  
Height of Side, 5 inches.

Fig. 1228.	Plain . . . . .	Each.	\$3.50
" 1228.	Painted . . . . .	"	4 00
" 1228.	Galvanized . . . . .	"	5 50
" 1228.	Enameled . . . . .	"	7 50

IRON WASH BASINS.

WITH PATENT OVERFLOW.



Fig. 1229.

WITH COMMON OVERFLOW.



Fig. 1230.

SIZE . . . . . INCHES.		12	14	16
Fig. 1229.	Plain . . . . .	\$1.60	1.90	2.50
"	1229. Painted . . . . .	1.85	2.15	2.75
"	1229. Enameled . . . . .	3.00	3.50	4.50
"	1230. Plain . . . . .	1.25	1.50	2.00
"	1230. Painted . . . . .	1.50	1.75	2.25
"	1230. Enameled . . . . .	2.75	3.00	3.75

IRON URINALS.

PLAIN, PAINTED, GALVANIZED AND ENAMELED.

CORNER URINAL.

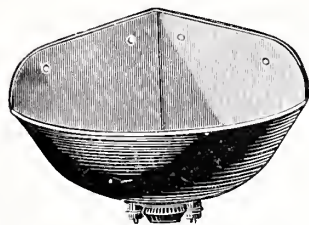


Fig. 1231.

HALF-CIRCLE URINAL.

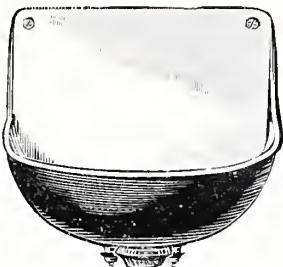


Fig. 1232.

				Plain.	Painted.	Galvanized.	Enameled.
Fig. 1231.	No. 1.	7 inches on Side . . . . .		\$0.75	.90	1.20	1.75
"	1231.	" 2. 9 " " " . . . . .		1.00	1.15	1.70	2.25
"	1231.	" 3. 12 " " " . . . . .		1.25	1.45	2.25	2.75
"	1232.	" 1. 12 " " Back . . . . .		1.00	1.15	2.00	2.50
"	1232.	" 2. 15 " " " . . . . .		1.30	1.50	2.50	3.00

# IRON CESSPOOLS AND TRAPS.

## CESSPOOLS WITH BELL TRAP.

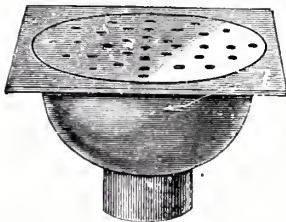


Fig. 1233.



Fig. 1234.

## STABLE CESSPOOL WITH BELL TRAP AND GRATING.

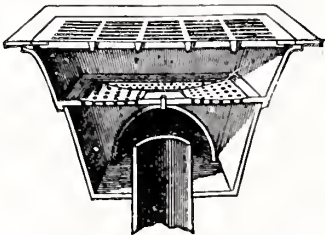


Fig. 1235.

	Size.	Light.	Medium.	Heavy.
Fig. 1233.	13 x 13 in.	\$1.50	2.50	3.00

Fig. 1235. Size, 16 x 16, 10 in. deep, each, \$4.50

## SEWER TRAP.

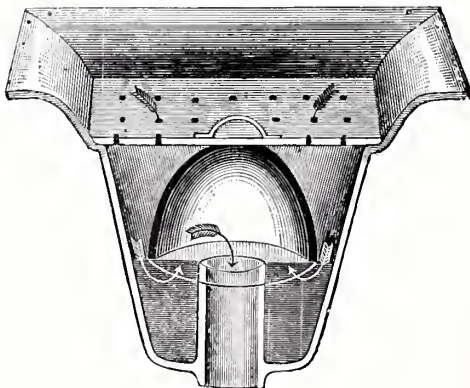


Fig. 1236.

Fig. 1236. Size, 16 x 16, 10 in. deep, each, \$2.50

## CELLAR TRAP.

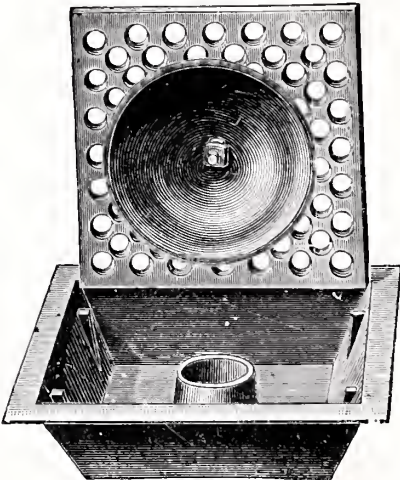


Fig. 1237.

Fig. 1237.	Size, 9 x 9, 2 1/4 in. deep, each,	\$1.25
" 1237.	" 12 x 12, 2 1/4 " "	1.75

## HYDRANT CESSPOOL.

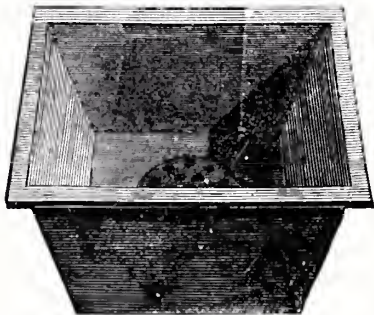


Fig. 1238.

Fig. 1238.	Size, 12 x 12, 6 in. deep, each	\$1.00
" 1238.	" 14 x 14, 6 " "	1.15
" 1238.	" 16 x 16, 6 " "	1.30
With Bell Trap, add to List,		.50

## STENCH TRAP.

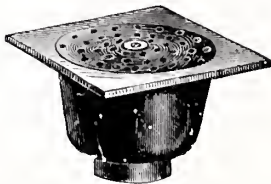


Fig. 1239.

Fig. 1239.	Top, 6 inches square, each	\$0.75
" 1239.	" 4 " " "	.75
" 1239.	" 9 " " "	1.10



# WINCHESTER STONEWARE.

IMPROVED LAUNDRY TUBS AND SINKS.  
WITH SOLID BRASS SIAMESE PLUG AND OVERFLOW.  
CUT SHOWING TUB.

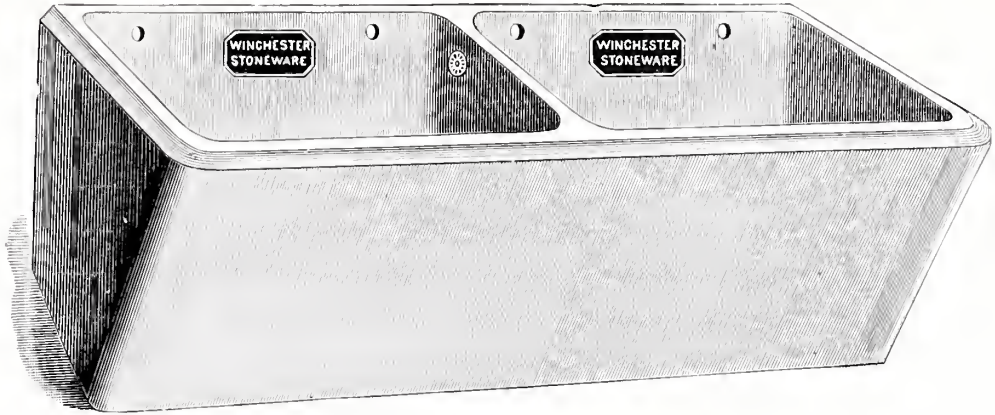
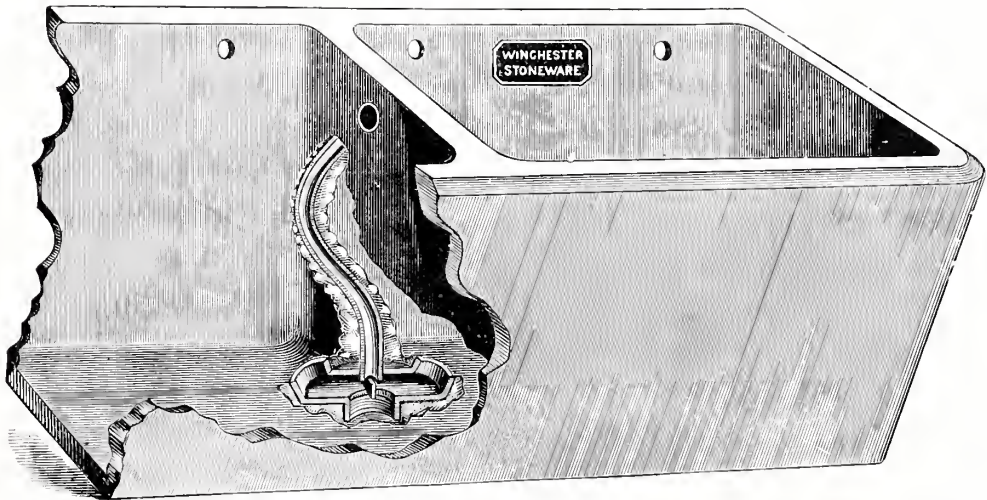


Fig 1240.

CUT SHOWING SIAMESE PLUG AND OVERFLOW COMBINED CAST IN TUB.



PRICE-LIST OF TUBS.

Fig. 1241.

PRICE-LIST OF SINKS.

	No.	Parts.	Size.	Price Tub Alone.	With Painted Legs.	With Galv. Legs.	Size.	Price.	With Galv. Legs or Brackets.	With Galv. Legs or Brackets.
Fig. 1240.	4	1 Part.	31 x 24	\$12.00	15.00	16.00	30 x 19 x 8	\$11.00	12.50	13.75
" 1240.	12	2 "	48 x 21	15.00	18.00	19.00	42 x 19 x 8	12.00	13.50	14.75
" 1240.	14	2 "	48 x 24	18.00	21.00	22.00	48 x 24 x 8	15.00	16.50	17.75
" 1240.	22	3 "	72 x 21	25.00	29.50	31.00				
" 1240.	24	3 "	72 x 24	30.00	34.50	36.00				

Our Solid Brass Siamese Plug and Overflow combined is the best and most economical arrangement in the market. It has been approved by every plumber who has used it. It is cast in the Tub, and the wiping of one joint completes the work.

These prices include Plug and Overflow, as shown. Written guarantee with all goods if requested.



# SOAPSTONE LAUNDRY TUBS AND SINKS.

WITH ASH TOP AND COVERS, GALVANIZED OR PAINTED IRON LEGS.

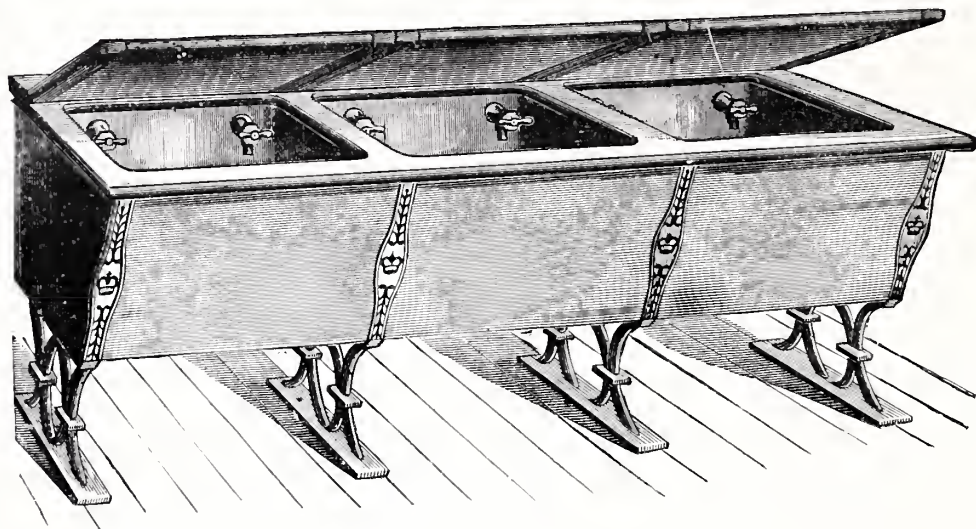


Fig. 1242.

Fig. 1242.	No. 1, Two-Part Tub, 42 x 22 x 16 inches	\$13.50 ; with 6-inch Back, \$15.00
" 1242.	No. 2, " " 48 x 22 x 16 "	16.00 ; " 6 " 17.50
" 1242.	No. 3, " " 48 x 24 x 16 "	18.00 ; " 6 " 19.50
" 1242.	No. 4, Three-Part " 72 x 24 x 16 "	27.00 ; " 6 " 31.00

	For Two-Part Tubs.	For Three-Part Tubs.
Ash Top, Frame and Legs . . . . .	\$7.00	10.00
" " " with Covers . . . . .	8.75	12.50
" with Painted Iron Legs . . . . .	4.85	8.25
" " Galvanized Iron Legs . . . . .	6.85	12.25
" and Covers, with Painted Iron Legs . . . . .	6.60	10.75
" " " Galvanized Iron Legs . . . . .	8.60	14.75
Wringer Guard, Brass . . . . .		\$2.00
" " Nickel Plated . . . . .		2.50

## SOAPSTONE SINKS.

3 Feet . . . . .	\$9.00 ; with 6-inch Back, \$10.50
3 " 6 inches . . . . .	10.00 ; " 6 " 12.00
4 " . . . . .	13.00 ; " 6 " 15.00

WHITE CROCKERY LAUNDRY TUBS  
AND SINKS.

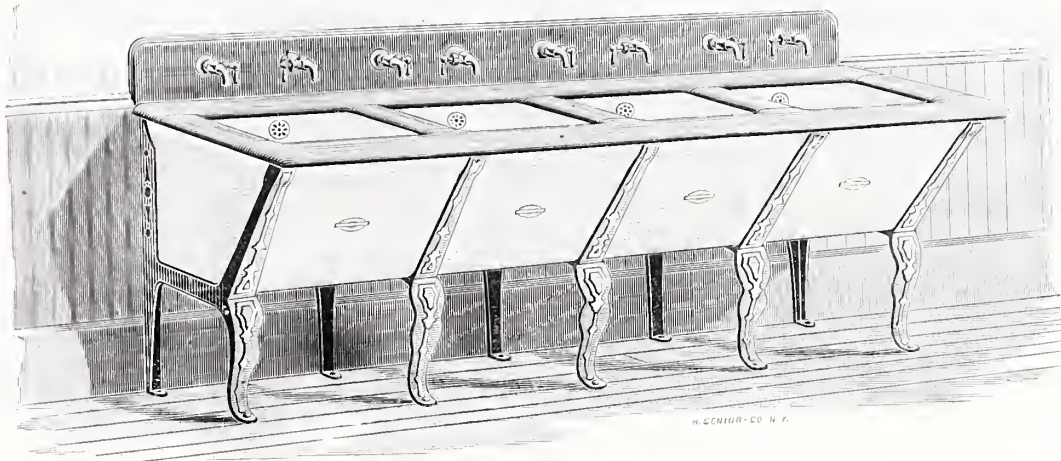


Fig. 1243.

Fig.			Fig.		
1243.	One Tub without Stand or Top . . .	\$18.00	1243.	Galv. Iron Stands for set of 2 Tubs . . .	\$5.25
1243.	Two Tubs, Galvanized Iron Stands		1243.	“ “ “ “ 3 “ . . .	7.00
	and Ash Top, Bolts and Screws . . .	44.00	1243.	Wood Top for 1 Tub . . . . .	2.00
1243.	Three Tubs, Galvan'd Iron Stands		1243.	“ “ “ “ for set of 2 Tubs . . . .	2.75
	and Ash Top, Bolts and Screws . . .	65.00	1243.	“ “ “ “ 3 “ . . . . .	4.00
1243.	Galvanized Iron Stand for 1 Tub . . .	3.50			

We make three sizes of Tubs, the outside dimensions of which are as follows:

SIZE . . . . .	A	B	C
Length, inches . . . . .	29	27	25
Width “ . . . . .	25	25	25
Depth “ . . . . .	16	16	16

Thickness, 1½ inch, with heavy flange all around. Weight, one set of 3 Tubs, complete, about 500 lbs.

One Tub in each set has a corrugated surface on the inside front, forming an unequaled “ Wash-board,” and all have recesses for soap in one corner.

BUTLERS' PANTRY SINKS.

24 x 18, 8 inches deep . . . . .	\$8.00
30 x 18, 11 “ . . . . .	14.00

KITCHEN SINKS.

30 x 22, 7½ inches deep . . . . .	\$12.00
37 x 22, 7½ “ . . . . .	16.00
42 x 22, 7½ “ . . . . .	20.00

CORNER SINKS.

20 x 28, 7½ inches deep . . . . .	\$14.00
-----------------------------------	---------

SLOP SINKS.

19 x 19, 15 inches deep . . . . .	\$14.00
Galvanized Iron Stands and Ash Top for Kitchen Sinks . . . . .	6.00
Galvanized Iron Brackets, per pair . . . . .	2.00
“ “ “ “ New Pattern, per pair . . . . .	3.00
“ “ “ “ Stands and Legs for Slop Sinks . . . . .	5.00
Brass Stands and Legs for Slop Sinks . . . . .	25.00
“ “ “ “ Legs and Flushing Rim for Slop Sinks . . . . .	40.00
Flushing Rim for Slop Sinks . . . . .	15.00

# RANGE BOILERS.

IRON RANGE BOILER.  
GALVANIZED.

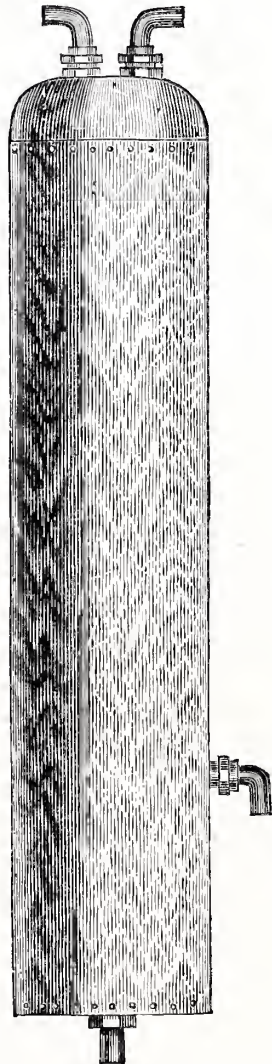


Fig. 1244.

COPPER RANGE BOILER.  
LIGHT OR HEAVY PRESSURE.



Fig. 1245.

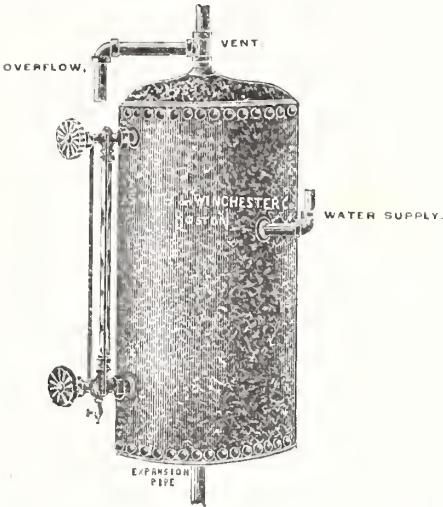
			Size.		Price.
	Capacity.	Height.	Diameter.	Galv.	
Fig. 1244.	18 gallons, 3 feet by 12 inches .				\$14.50
" 1244.	21 "	3½ "	12 "		15.50
" 1244.	24 "	4 "	12 "		15.75
" 1244.	24 "	3 "	14 "		19.00
" 1244.	27 "	4½ "	12 "		18.50
" 1244.	28 "	3½ "	14 "		20.25
" 1244.	30 "	5 "	12 "		19.00
" 1244.	32 "	4 "	14 "		21.00
" 1244.	35 "	5 "	13 "		21.00
" 1244.	36 "	6 "	12 "		24.50
" 1244.	36 "	4½ "	14 "		21.50
" 1244.	40 "	5 "	14 "		24.00
" 1244.	42 "	4 "	16 "		26.00
" 1244.	47 "	4½ "	16 "		30.00
" 1244.	48 "	6 "	14 "		30.00
" 1244.	52 "	5 "	16 "		31.00
" 1244.	53 "	4 "	18 "		31.50
" 1244.	63 "	6 "	16 "		38.00
" 1244.	66 "	5 "	18 "		38.00
" 1244.	79 "	6 "	18 "		44.00
" 1244.	82 "	5 "	20 "		45.50
" 1244.	98 "	6 "	20 "		61.50
" 1244.	100 "	5 "	22 "		63.50
" 1244.	120 "	6 "	22 "		74.00
" 1244.	120 "	5 "	24 "		72.50
" 1244.	144 "	6 "	24 "		103.00
" 1244.	168 "	7 "	24 "		120.00
" 1244.	192 "	8 "	24 "		132.00

NUMBER OF GALLONS . . . . .	30	35	40	45	50	60	70	80	90	100
Fig. 1245. Round Head, light . . . .	\$24.00	27.00	32.00	37.00	41.00	52.00	59.00	68.00	80.00	88.00
" 1245. " " heavy . . . . .	26.00	30.00	34.00	39.00	43.00	55.00	63.00	72.00	84.00	92.00
" 1245. " " double weight . . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	85.00	. . . . .	100.00	. . . . .	112.00
" 1245. Boxing, net. . . . .	1.25	1.50	1.50	1.75	1.75	2.00	2.00	2.00	2.00	2.00

All Couplings are for Lead Pipe connection, unless otherwise ordered. Couplings threaded for ½ or ¾ Iron Pipe, or ¾ or ⅝ Fine Thread if desired.



Steel Expansion Tanks, Galvanized.



	DIAM.	HEIGHT.	LIGHT, SOLDERED.	HEAVY, RIVETED.
10 Gals.	12 in.	x 20 in.	Price \$6.40	\$8.00
12 "	12 "	x 24 "	" 7.30	8.50
15 "	12 "	x 30 "	" 8.20	9.00
18 "	12 "	x 36 "	" 9.10	9.50
20 "	14 "	x 30 "	"	12.50
24 "	14 "	x 36 "	"	13.00
26 "	16 "	x 30 "	"	14.00
32 "	16 "	x 36 "	"	15.00
42 "	16 "	x 48 "	"	16.50
66 "	18 "	x 60 "	"	31.00
82 "	20 "	x 60 "	"	37.00
100 "	22 "	x 60 "	"	51.00
120 "	24 "	x 60 "	"	58.00

PRICES DO NOT INCLUDE TRIMMINGS.



Fig. 1248.

BOILER STANDS.

Height, 21 inches.

		Plain.	Galvanized.
Fig. 1248.	12-inch Ring . . . . .	\$1.25	2.50
" 1248.	13 " . . . . .	1.30	2.60
" 1248.	14 " . . . . .	1.40	2.70
" 1248.	15 " . . . . .	1.50	3.00
" 1248.	16 " . . . . .	1.75	3.25
" 1248.	17 " . . . . .	1.85	3.60
" 1248.	18 " . . . . .	2.00	3.80
" 1248.	20 " . . . . .	2.25	4.50
" 1248.	22 " . . . . .	2.75	5.00
" 1248.	24 " . . . . .	3.50	6.50

For Stands 30 inches high, add to List, for Plain, 50 cents ; Galvanized, 75 cents.



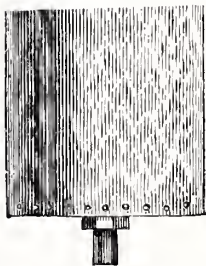


Fig. 1244.

"	1244.	120	"	6	"	"	22	"	. 69.00
"	1244.	120	"	5	"	"	24	"	. 74.00
"	1244.	144	"	6	"	"	24	"	. 72.50
"	1244.	168	"	7	"	"	24	"	. 103.00
"	1244.	192	"	8	"	"	24	"	. 120.00
									. 132.00

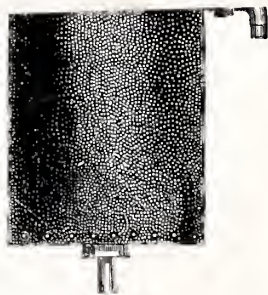


Fig. 1245.

NUMBER OF GALLONS . . . . .	30	35	40	45	50	60	70	80	90	100
Fig. 1245. Round Head, light . . . .	\$24.00	27.00	32.00	37.00	41.00	52.00	59.00	68.00	80.00	88.00
" 1245. " " heavy . . . .	26.00	30.00	34.00	39.00	43.00	55.00	63.00	72.00	84.00	92.00
" 1245. " " double weight . . . . .						85.00		100.00		112.00
" 1245. Boxing, net. . . . .	1.25	1.50	1.50	1.75	1.75	2.00	2.00	2.00	2.00	2.00

All Couplings are for Lead Pipe connection, unless otherwise ordered. Couplings threaded for 1/2 or 3/4 Iron Pipe, or 3/4 or 7/8 Fine Thread if desired.

HEAVY PRESSURE COPPER BOILERS.

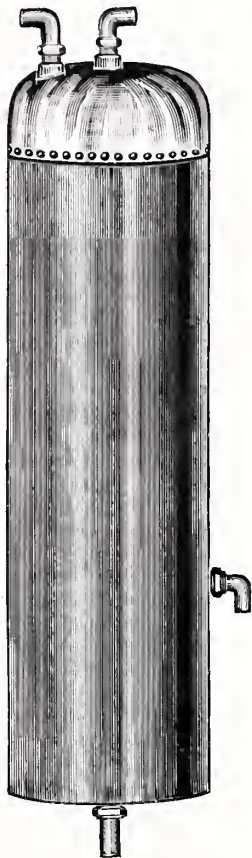


Fig. 1246.

	No. of Gallons.	Extra Heavy.	Double Extra Heavy. 300 lbs. Test.
Fig. 1246.	24	824.00	24.00
" 1246.	30	26.00	26.00
" 1246.	35	30.00	30.00
" 1246.	40	34.00	34.00
" 1246.	45	39.00	39.00
" 1246.	50	43.00	43.00
" 1246.	60	55.00	55.00
" 1246.	70	63.00	63.00
" 1246.	80	72.00	72.00
" 1246.	90	84.00	84.00
" 1246.	100	92.00	92.00

These Boilers are made of best Lake Superior Copper, with riveted head and bottom, tinned and braced inside.

Boilers with Steam Coils made to order.

Tested to 200 lbs. Hydraulic Pressure to Square Inch.

Each Boiler tested before leaving factory.

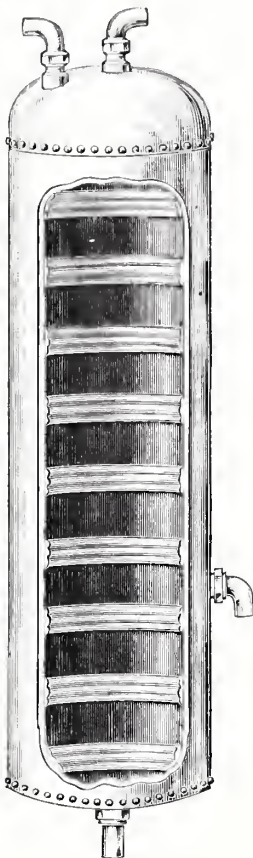


Fig. 1247.

All Boilers with either two or three Top Couplings, with either flat-face or ground joints for Lead or Iron Pipe. No charge for Couplings or Cold Water Tubes.

BOILER STAND.



Fig. 1248.

BOILER STANDS.

Height, 21 inches.

		Plain.	Galvanized.
Fig. 1248.	12-inch Ring . . . . .	\$1.25	2.50
" 1248.	13 " . . . . .	1.30	2.60
" 1248.	14 " . . . . .	1.40	2.70
" 1248.	15 " . . . . .	1.50	3.00
" 1248.	16 " . . . . .	1.75	3.25
" 1248.	17 " . . . . .	1.85	3.60
" 1248.	18 " . . . . .	2.00	3.80
" 1248.	20 " . . . . .	2.25	4.50
" 1248.	22 " . . . . .	2.75	5.00
" 1248.	24 " . . . . .	3.50	6.50

For Stands 30 inches high, add to List, for Plain, 50 cents ; Galvanized, 75 cents.

BOILER COUPLINGS.

STRAIGHT.

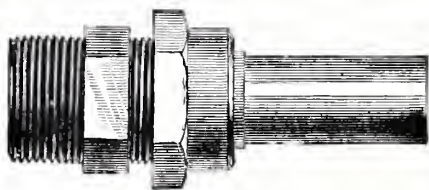


Fig. 1249.

BENT.

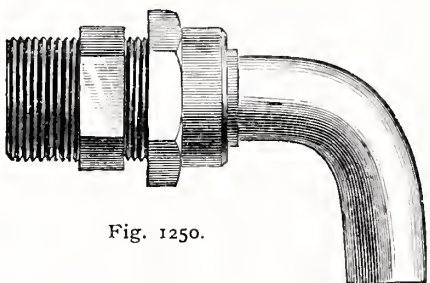


Fig. 1250.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1
Fig. 1249. Straight, Ground Face . . . . .	Per dozen.	\$8.50	9.00	12.50
" 1250. Bent, Ground Face. . . . .	"	9.50	10.00	13.50
Per Set, 3 Bent, 1 Straight, Ground, \$2.75. Per Set, 3 Bent, 1 Straight, Ground, for Iron Pipe. \$5.00.				

WATER BACK COUPLINGS.

STRAIGHT.

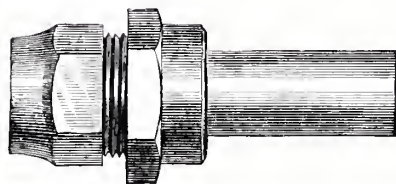


Fig. 1251.

BENT.

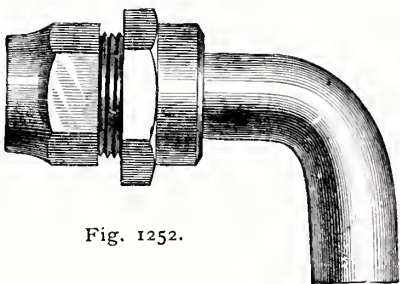


Fig. 1252.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1
Fig. 1251. Straight, Ground Face . . . . .	Per dozen.	\$7.50	8.00	11.50
" 1251. " " Long Spud . . . . .	"	"	10.00	"
" 1252. Bent, " " Long Spud . . . . .	"	8.50	9.00	12.50
" 1252. " " Long Spud . . . . .	"	"	11.00	"

BOILER AND VACUUM VALVES.

BOILER VALVE.

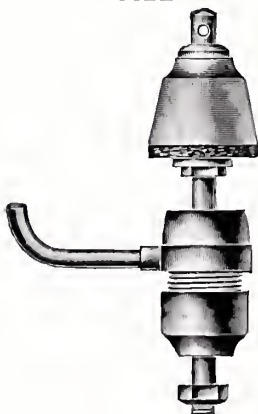


Fig. 1253.

VACUUM VALVE.

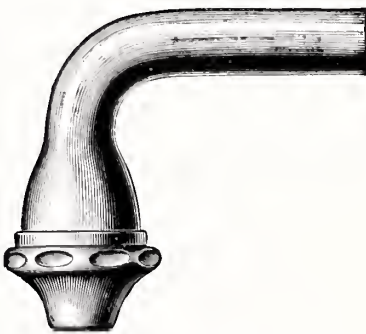


Fig. 1254.

SIZE . . . . .	INCHES.	1	2
Fig. 1253 . . . . .	Per dozen.	\$15.00	24.00

Fig. 1254 . . . . .	Per dozen.	\$12.00
With Iron Pipe Screw (not illustrated)		
Per dozen . . . . .		14.00

BASIN, BATH, AND WASH TRAY CHAINS  
AND SNAPS.

PLUMBERS' SAFETY CHAIN AND SNAPS.

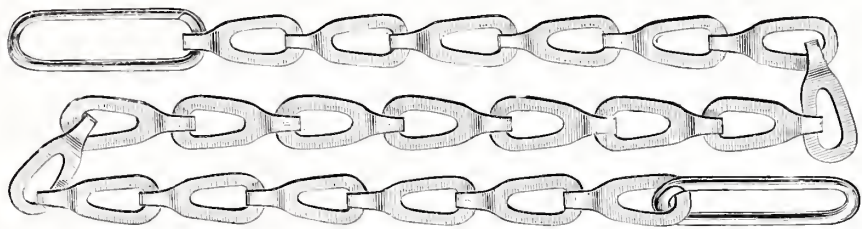


Fig. 1255.

			Brass.	Silver.	Nickel.
No. 0.	Basin Chains and Snaps . . . . .	Per dozen Lengths.	\$1.00	1.35	1.70
No. 1.	" " " " " " " " " " " "	" "	1.10	1.45	1.85
No. 0.	Wash Tray Chains and Snaps . . . . .	" "	1.15	1.60	2.00
No. 1.	" " " " " " " " " " " "	" "	1.25	1.70	2.10
No. 0.	Bath Chains and Snaps . . . . .	" "	1.25	1.75	2.20
No. 1.	" " " " " " " " " " " "	" "	1.40	1.90	2.35

Basin Chains, 16 inches long. Bath Chains, 27 inches long. Wash Tray Chains, 21 inches long.

PLUMBERS' SAFETY CHAIN.

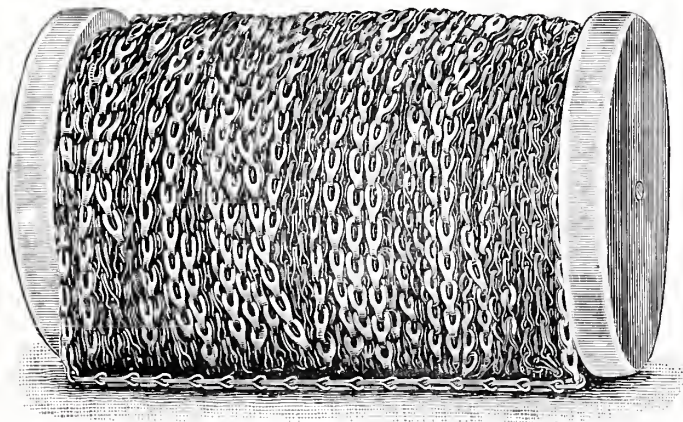


Fig. 1256.

			Brass.	Nickel.
No. 0.	Reels, 500 Feet . . . . .	Each.	\$31.25	37.50
No. 1.	" 500 " " " " " " " " " " "	" "	41.50	48.00
No. 0.	Boxes, 12 Yards . . . . .	" "	2.25	2.75
No. 1.	" 12 " " " " " " " " " "	" "	3.00	3.50
No. 0.	Snaps . . . . .	Per Gross.	2.00	2.15
No. 1.	" " " " " " " " " " " "	" "	2.25	2.40



CLOSET CISTERN PULLS.

No. 1. CELLULOID, WITH RUBBER BUFFER AND PLATED TIPS.

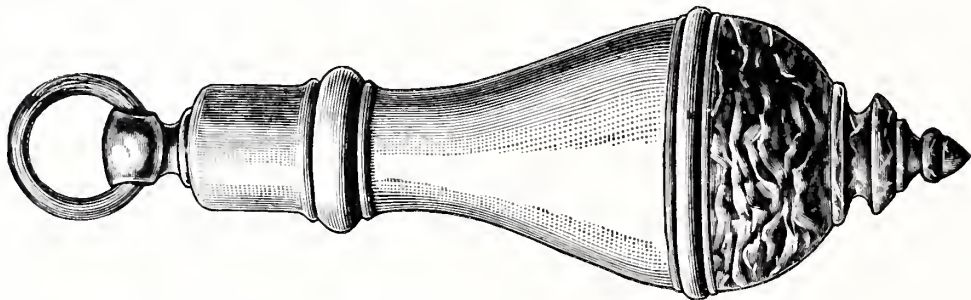


Fig. 1257.

Fig. 1257.	White . . . . .	Per dozen.	\$7.00
" 1257.	Ivory . . . . .	"	9.00
" 1257.	Ivory and Colored . . . . .	"	12.00

No. 2. HARD WOOD, WITH RUBBER BUFFER AND PLATED TIPS.

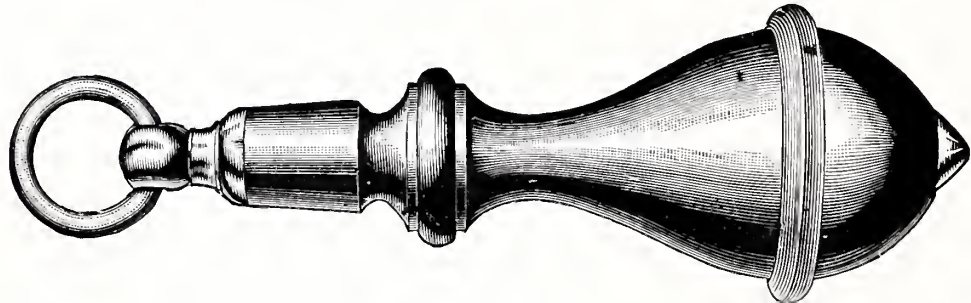


Fig. 1258.

Fig. 1258.	Cherry, Walnut or Oak . . . . .	Per dozen.	\$4.00
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No. 3. HARD WOOD, WITH EBONY FINISH, JAPANNED TIPS.

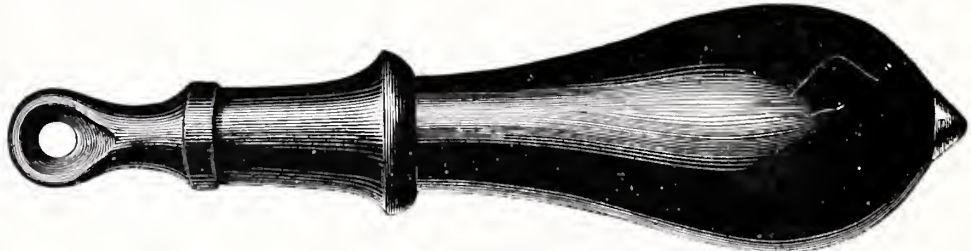


Fig. 1259.

Fig. 1259 . . . . .	Per dozen.	\$3.00
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## BRASS CLOSET SCREWS.



Fig. 1260.



Fig. 1261.



Fig. 1262.



Fig. 1263.

Fig. 1260.	Polished Brass . . . . .	Per dozen.	\$2.75
" 1260.	Nickel Plated . . . . .	"	3.00
" 1261.	Polished Brass . . . . .	"	2.75
" 1261.	Nickel Plated . . . . .	"	3.00
" 1262.	Polished Brass . . . . .	"	.35
" 1262.	Nickel Plated . . . . .	"	.45
" 1263.	Polished Brass . . . . .	"	.25
" 1263.	Nickel Plated . . . . .	"	.35

## BRASS WASHERS.

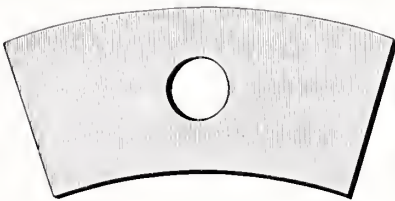


Fig. 1264.

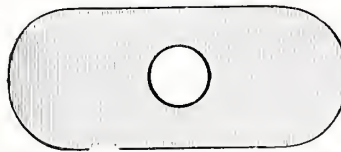


Fig. 1265.

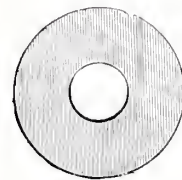


Fig. 1266.



Fig. 1267.

Fig. 1264.	Polished Brass . . . . .	Per dozen.	\$1.00
" 1264.	Nickel Plated . . . . .	"	1.20
" 1265.	Polished Brass . . . . .	"	.65
" 1265.	Nickel Plated . . . . .	"	.75
" 1266.	Polished Brass . . . . .	"	.60
" 1266.	Nickel Plated . . . . .	"	.70
" 1267.	Polished Brass . . . . .	"	.50
" 1267.	Nickel Plated . . . . .	"	.60

TRAP SCREWS.

TRAP SCREW.

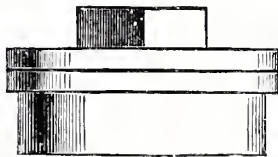


Fig. 1268.

VENTED, WITH STRAIGHT COUPLING.

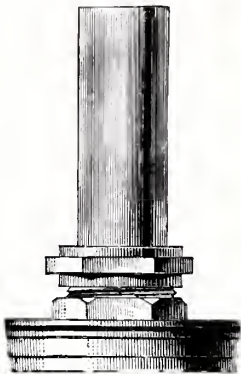


Fig. 1269.

VENTED, WITH BENT COUPLING.

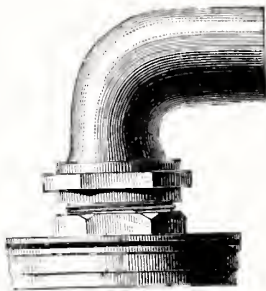


Fig. 1270.

SIZE . . . . .	INCHES.	1	1¼	1½	2	2½	3	3½	4	5	6
Fig. 1268 . . . . .	Per dozen.	\$3.00	3.50	4.50	8.00	12.00	18.00	26.00	30.00	40.00	60.00
" 1269 . . . . .	"	.	.	.	.	.	.	23.00	33.00	43.00	
" 1270 . . . . .	"	.	.	.	.	.	.	24.00	34.00	44.00	

STRAINERS.

PLAIN.

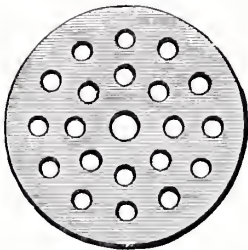


Fig. 1271.

CONVEX.

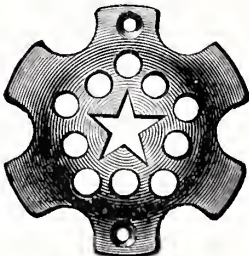


Fig. 1272.

FANCY.

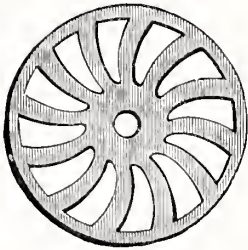


Fig. 1273.

SIZE . . . . .	INCHES.	¾	1	1¼	1½	2	2½	3	3½	4	5	6
Fig. 1271 . . . . .	Per dozen.	\$0.60	.85	1.20	1.45	1.80	2.40	3.00	3.60	4.80	9.00	12.00
" 1272 . . . . .	"	.95	1.40	1.80	2.40	3.00	3.60	4.20	4.80	6.00	12.00	15.00
" 1273 . . . . .	"	.	.85	1.20	1.45	1.80	2.40	3.00	3.60	4.80	9.00	12.00

# FLOOR PLATES AND CLAMPS.

BRASS FLOOR PLATE.  
FOR WATER CLOSET.

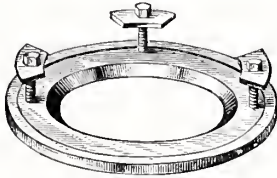


Fig. 1274.

Fig. 1274. Complete, with Bolts . . Each. \$1.50

RUBBER GASKET.  
FOR WATER CLOSET.



Fig. 1275.

Fig. 1275 . . . . . Each. \$0.50

BRASS FLOOR CLAMP.

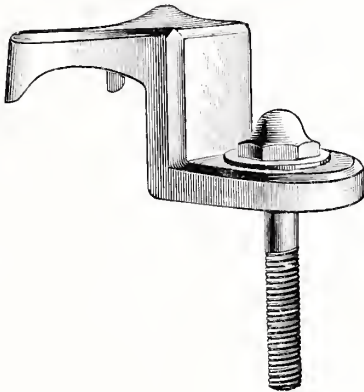


Fig. 1276.

HOPPER CLAMP.

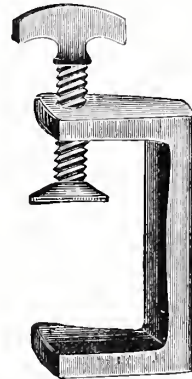


Fig. 1277.

Fig. 1276.	With Bolt and Washer, complete . . . . .	Each.	\$0.50
" 1277 . . . . .		Per dozen.	3.60

BASIN CLAMP.  
LARGE.

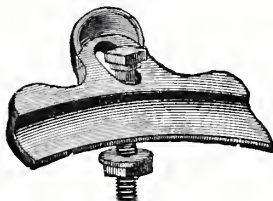


Fig. 1278.

Fig. 1278 . . . . .	Per dozen.	\$2.00
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BASIN AND SINK GASKETS.

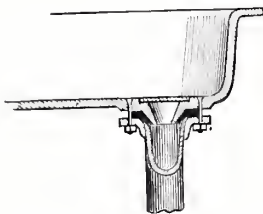


Fig. 1279.



Fig. 1280.

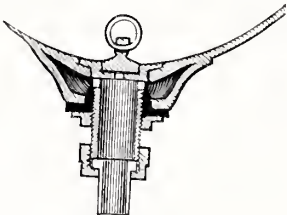


Fig. 1281.

Fig. 1280.	Sink Gaskets . . . . .	Per dozen.	\$3.00
" 1280.	Basin Gaskets . . . . .	"	1.50

BRASS JOINT COVERS.

FOR MARBLE SLABS.



Fig. 1282.

Fig. 1282.	Nickel Plated, complete. . . . .	Each.	\$2.50
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RUBBER BUFFERS AND COUPLINGS.

RUBBER BUFFERS FOR CLOSET SEATS.

ROBB'S RUBBER COUPLING.



Fig. 1283.

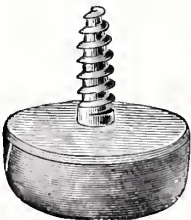


Fig. 1284.

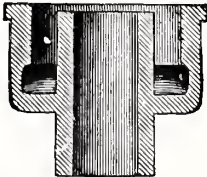


Fig. 1285.

Fig. 1283.	Rubber Buffers, Small . . . . .	Per dozen.	\$1.00
" 1284.	" " Large . . . . .	"	1.25
" 1285.	For Earthen Basins . . . . .	"	2.00
" 1285.	" Closet Bowls . . . . .	"	2.50

## BRASS TOWEL RACKS.

No. 1.



Fig. 1286.

No. 2.



Fig. 1287.

No. 3.



Fig. 1288.

No. 4.



Fig. 1289.

Fig. 1286.	No. 1,	Polished Brass and Lacquered,	30 inches in Length . . . . .	\$1.25
" 1286.	"	Nickel Plated,	" " . . . . .	1.25
" 1287.	No. 2,	Lacquered,	" " . . . . .	2.25
" 1287.	"	Nickel Plated,	" " . . . . .	2.25
" 1288.	No. 3,	Lacquered,	" " . . . . .	1.50
" 1288.	"	Nickel Plated,	" " . . . . .	1.50
" 1289.	No. 4,	Lacquered,	" " . . . . .	2.50
" 1289.	"	Nickel Plated,	" " . . . . .	2.50

For either style with three Bars, add to List \$1.00 for additional Bar.

PLUGS AND GRATES.

FOR CERAMIC KITCHEN SINK.

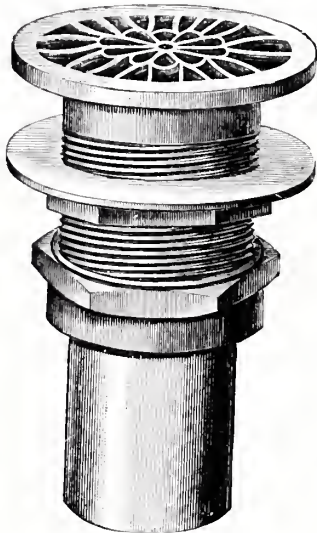


Fig. 1290.

Diameter of Flange . . . . .	Inches.	$3\frac{5}{16}$
Size of Coupling . . . . .	"	$1\frac{3}{4}$
Fig. 1290. Finished . . . . .	Per dozen.	\$48.00
" 1290. Nickel Plated . . . . .	"	51.00
" 1290. Silver Plated . . . . .	"	54.00

FOR CERAMIC SLOP SINK.

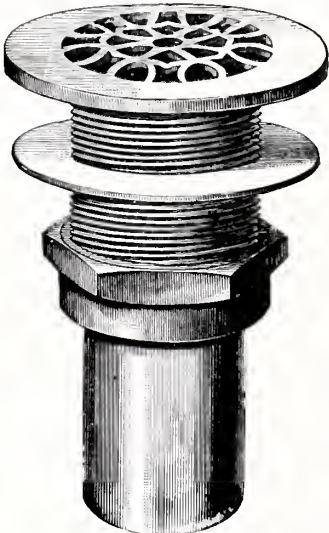


Fig. 1291.

Diameter of Flange . . . . .	Inches.	$3\frac{7}{8}$
Size of Coupling . . . . .	"	$1\frac{3}{4}$
Fig. 1291. Finished . . . . .	Per dozen.	\$50.00
" 1291. Nickel Plated . . . . .	"	53.00
" 1291. Silver Plated . . . . .	"	56.00

OVERFLOW GRATES.

FOR CERAMIC WASH TRAY.

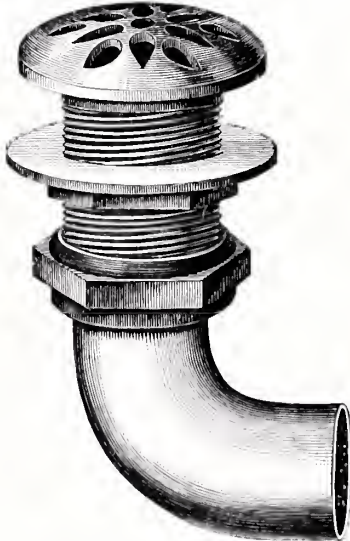


Fig. 1292.

Diameter of Flange . . . . .	Inches.	$2\frac{1}{4}$
Size of Coupling . . . . .	"	$1\frac{1}{4}$
Fig. 1292. Finished . . . . .	Per dozen.	\$36.00
" 1292. Nickel Plated . . . . .	"	39.00
" 1292. Silver Plated . . . . .	"	42.00

FOR CERAMIC PANTRY SINK.

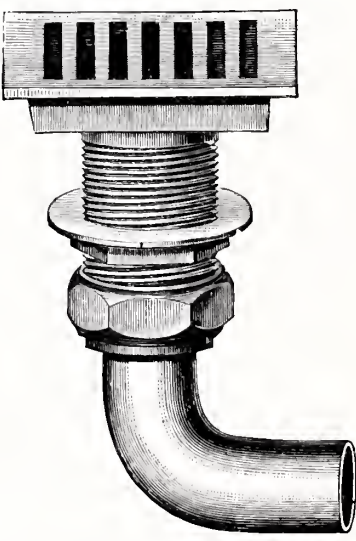


Fig. 1293.

Size of Flange . . . . .	Inches.	$2\frac{1}{6} \times 1\frac{3}{4}$
" Coupling . . . . .	"	$\frac{3}{4}$
Fig. 1293. Finished . . . . .	Per dozen.	\$24.00
" 1293. Nickel Plated . . . . .	"	27.00
" 1293. Silver Plated . . . . .	"	30.00

# WATER FILTERS.

SMALL GEM FILTER.

SECTIONAL VIEW.

LARGE GEM FILTER.



Fig. 1294.



Fig. 1295.



Fig. 1296.

Fig. 1294.	Nickel Plated . . . . .	Per dozen.	\$9.50
" 1296.	" " . . . . .	"	11.00

GLASS GEM FILTER.

"COMMON SENSE" FILTER.

CROTON FILTER.



Fig. 1297.

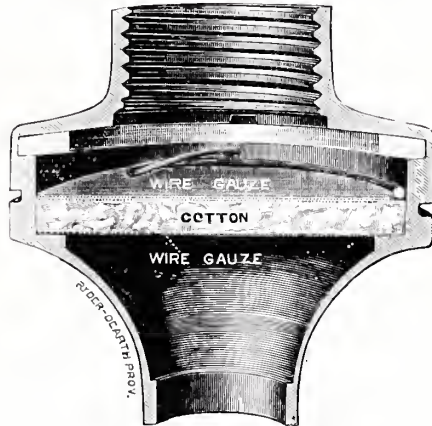


Fig. 1298.

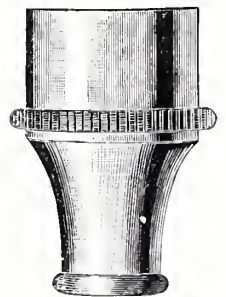


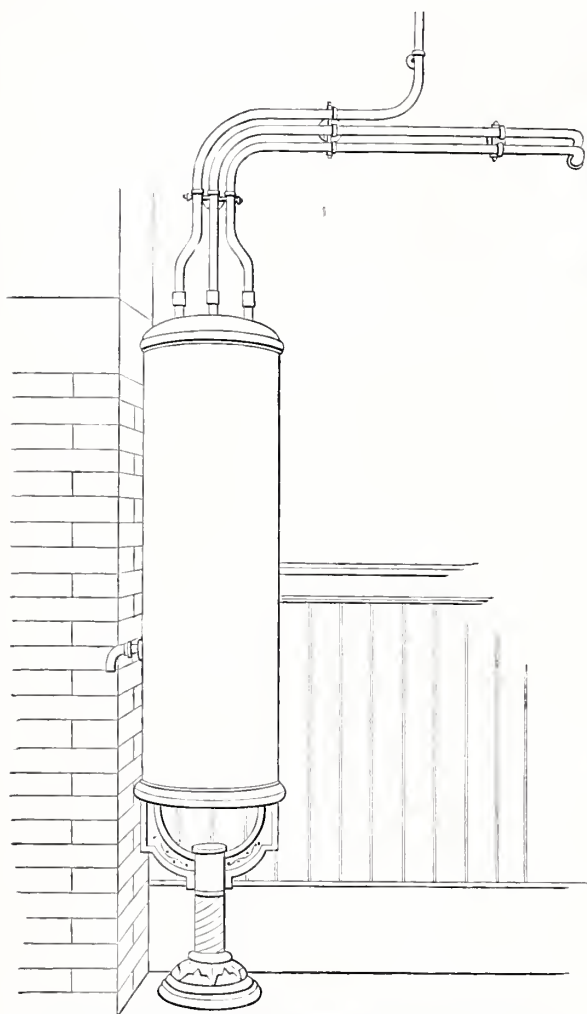
Fig. 1299.

Fig. 1297.	Nickel Plated . . . . .	Per dozen.	\$12.00
" 1298.	" " . . . . .	"	8.50
" 1299.	" " . . . . .	"	4.20

Quartz for Gem Filters and Pads for "Common Sense" always in stock.



# "BOSTON" BRASS PIPE HANGERS.



View showing Range Boiler fitted up with Brass Pipes and  
"Boston" Hanger.

Fig. 1300.

SINGLE.

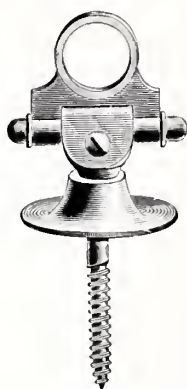


Fig. 1301.

DOUBLE.

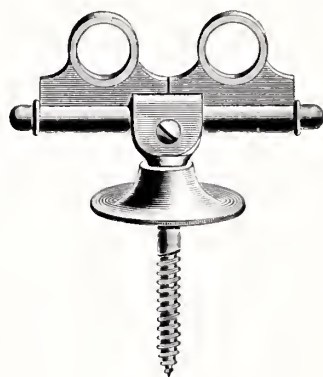


Fig. 1302.

TRIPLE.

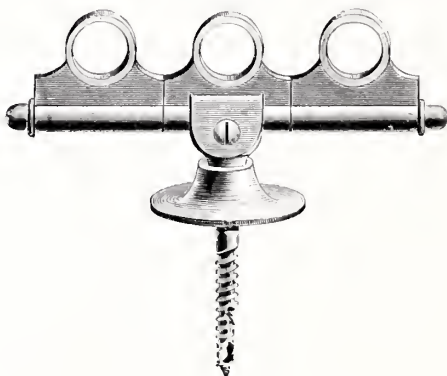


Fig. 1303.

This Hanger is designed to support brass pipes from ceilings or walls, and is complete in itself, requiring no screws or other means of fastening, as the screw shank is long enough to reach either studding or beams.

The advantage of using the "Boston" Hanger will be appreciated when comparison is made with the method of having a wooden strip four or five inches wide secured to the ceiling by the carpenter, with the pipes screwed up with brass clips.

The Hanger holds the pipes about two inches from the wall or ceiling, thus preventing the accumulation of dust or vermin so commonly found when put up in the old way.

The Rings are made separately of Polished Brass and Bronzed Iron and of all sizes, so that different sized pipes may be supported by one Hanger.

As the better class of work now done is exposed, the Hanger will add greatly to the style and finish of the work, especially in bath-rooms and kitchens, as shown by illustrations herewith.

For largest sizes of iron size brass pipe, or where more than three pipes are supported, two standards should be used.

Where pipes are more than two inches apart an extension piece can be fitted between Rings.

“BOSTON” BRASS PIPE HANGERS—CONT'D.

QUADRUPLE.



Fig. 1304.

Hanger for  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ -inch Iron Size Pipe ;  $\frac{3}{8}$ ,  $\frac{3}{4}$ ,  $\frac{7}{8}$ -inch Fine Thread Pipe.

	Bronzed Iron, Polished.	Brass.	Nickel Plat'g, ex.
Single . . . .	\$0.45	.90	.18
Double . . . .	.58	1.15	.23
Triple . . . .	.70	1.40	.28
Quadruple . .	.83	1.65	.33

PARTS OF HANGER.

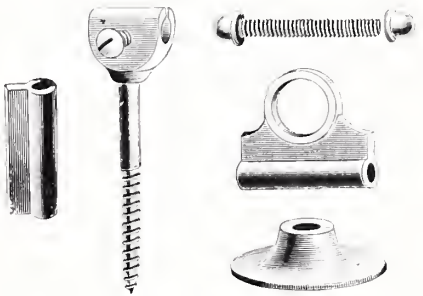


Fig. 1305.

Hanger for 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ -inch Iron Size Pipe ; 1,  $1\frac{1}{4}$ ,  $1\frac{1}{2}$ -inch Fine Thread Pipe.

	Bronzed Iron, Polished.	Brass.	Nickel Plat'g, ex.
Single . . . .	\$0.50	1.00	.18
Double . . . .	.65	1.30	.23
Triple . . . .	.80	1.65	.28
Quadruple . .	.95	1.95	.33

	Bronzed Iron, Polished.	Brass.	Nickel Plat'd.	Silver Plat'd.
Rings for $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ -inch Iron Size Pipe . . . . .	\$0.11	.23	.28	.50
“ $\frac{3}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ “ Fine Thread Pipe . . . . .	.11	.23	.28	.50
“ 1, $1\frac{1}{4}$ , $1\frac{1}{2}$ -inch Iron Size Pipe . . . . .	.14	.31	.36	.60
“ 1, $1\frac{1}{4}$ , $1\frac{1}{2}$ “ Fine Thread Pipe . . . . .	.14	.31	.36	.60
Upright Holder . . . . .	.15	.38	.43	.65
Flanges . . . . .	. .	.08	.13	.30
Ornaments . . . . .	. .	.08	.11	.15
Iron Rods . . . . .	. .	.08	. .	. .
Extension Piece, 1 inch long . . . . .	.09	.15	.19	.35
“ “ 2 inches long . . . . .	.11	.23	.28	.50

VIEW SHOWING BATH TUB AND LAVATORY FITTED WITH BRASS PIPES AND “BOSTON” HANGER.

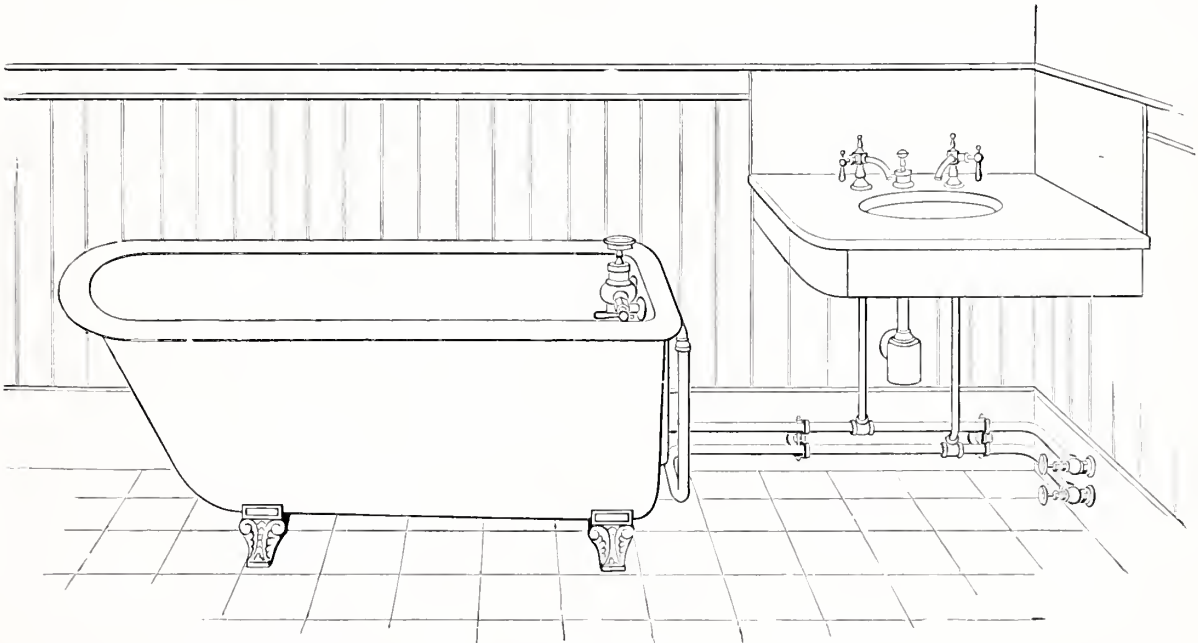


Fig. 1306.

NAME PLATES.



Fig. 1307.



Fig. 1308.

Fig. 1307.	Finished . . . . .	Each.	\$0.70
" 1307.	Nickel Plated . . . . .	"	.80
" 1307.	Silver Plated . . . . .	"	1.00
" 1308.	Finished . . . . .	"	.70
" 1308.	Nickel Plated . . . . .	"	.80
" 1308.	Silver Plated . . . . .	"	1.00

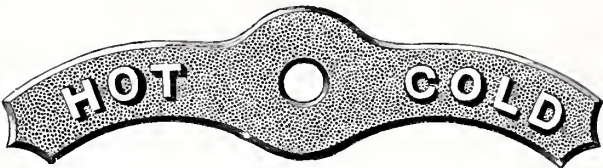


Fig. 1309.

Fig. 1309.	Finished . . . . .	Each.	\$1.40
" 1309.	Nickel Plated . . . . .	"	1.60
" 1309.	Silver Plated . . . . .	"	2.00

SOLDERING UNIONS AND NIPPLES.

PLAIN COUPLING.

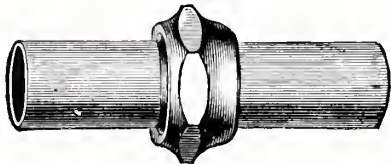


Fig. 1310.

MALE SOLDERING NIPPLE.

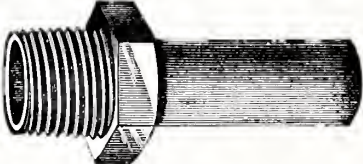


Fig. 1311.

FEMALE SOLDERING NIPPLE.

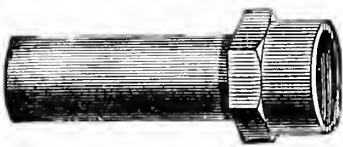


Fig. 1312.

SOLDERING UNION.

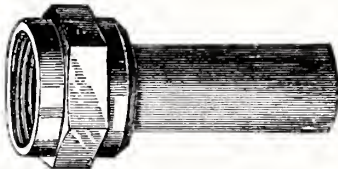


Fig. 1313.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{1}{4}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2
Fig. 1310 . . . . . Per dozen.	\$4.00	5.00	6.50	10.00	15.00	20.00	30.00
" 1311 . . . . . "	2.50	. .	3.00	5.00	7.50	10.00	14.00
" 1312 . . . . . "	2.50	. .	3.00	5.00	7.50	10.00	14.00
" 1313 . . . . . "	3.25	. .	4.00	6.00	8.50	12.00	18.00

## BRASS FERRULES AND CLEANOUTS.

STRAIGHT FERRULE.



Fig. 1314.

BENT FERRULE.



Fig. 1315.

REDUCING FERRULE.



Fig. 1316.

SIZE . . . . . INCHES.	2	3	4	5	6
Fig. 1314. Regular . . . . . Per dozen.	\$5.00	10.00	15.00	24.00	36.00
" 1314. Heavy . . . . . "	7.00	. .	20.00	. .	. .
" 1314. Regular with Hub . . . . . "	8.00	12.00	16.00	. .	. .
" 1314. Extra Heavy . . . . . "	11.00	. .	20.00	. .	. .
" 1315. Regular . . . . . "	12.00	15.00	24.00	. .	. .
" 1315. Extra Heavy . . . . . "	15.00	. .	30.00	. .	. .
" 1316. Regular . . . . . "	2 x 1 $\frac{1}{4}$	2 x 1 $\frac{1}{2}$	3 x 2	. .	. .
" 1316. Extra Heavy . . . . . "	\$5.00	6.00	8.00	. .	. .
	6.00	7.00	10.00	. .	. .

FERRULE WITH STRAIGHT COUPLING.



Fig. 1317.

FERRULE WITH BENT COUPLING.



Fig. 1318.

CLEANOUT.



Fig. 1319.

SIZE . . . . . INCHES.	2	3	4	5	6
Fig. 1317. . . . . Per dozen.	\$18.00	. .	. .	. .	. .
" 1318. . . . . "	20.00	. .	. .	. .	. .
" 1319. Regular . . . . . "	10.00	18.00	24.00	48.00	69.00
" 1319. Extra Heavy . . . . . "	14.00	24.00	36.00	54.00	75.00



# PATENTED RUBBER ELBOWS.

The Closet can be connected to Flush Pipe from Tank by simply expanding Elbow over the Pipe. It makes a secure joint, and after rubber is set to pipe it cannot be pulled off.

No. 1.

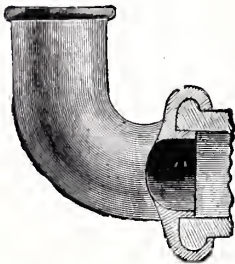


Fig. 1320.

No. 2.

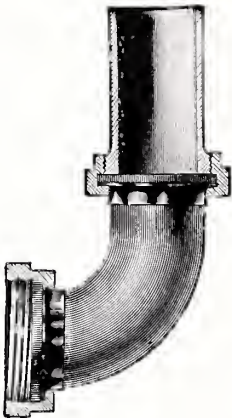


Fig. 1321.

No. 3.

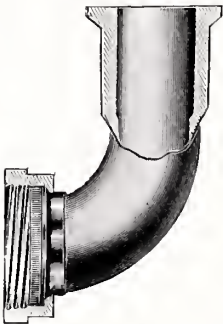


Fig. 1322.

Fig. 1320. Per doz. \$9.00      Fig. 1321. Per doz. . . . . \$12.00      Fig. 1322. Per doz. . . . . \$9.00  
Adjustable Couplings, if too long, cut off in line of rear flange and slip nut over.

No. 4.

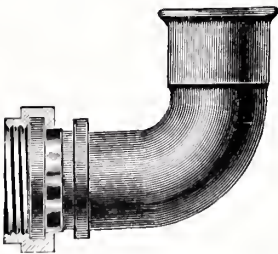


Fig. 1323.

No. 4 A.

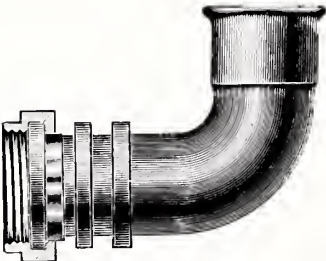


Fig. 1324.

No. 5.

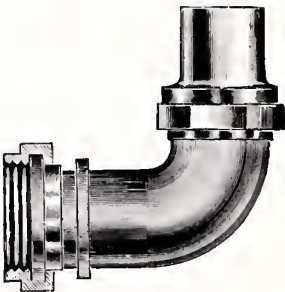


Fig. 1325.

Fig. 1323. Per doz. \$11.00      Fig. 1324. Per doz. . . . . \$12.00      Fig. 1325. Per doz. . . . . \$14.00  
No. 6 Elbow, for 2-inch Vent, same shape as No. 4, per dozen, \$15.00.

Nos. 7 and 8.



Fig. 1326.

Fig. 1326. No. 7. For 1 1/2-inch Supply . . . . . \$9.00  
" 1326. No. 8. " 2-inch Vent . . . . . 14.00

# IDEAL PORCELAIN ROLL RIM LAUNDRY TUBS.

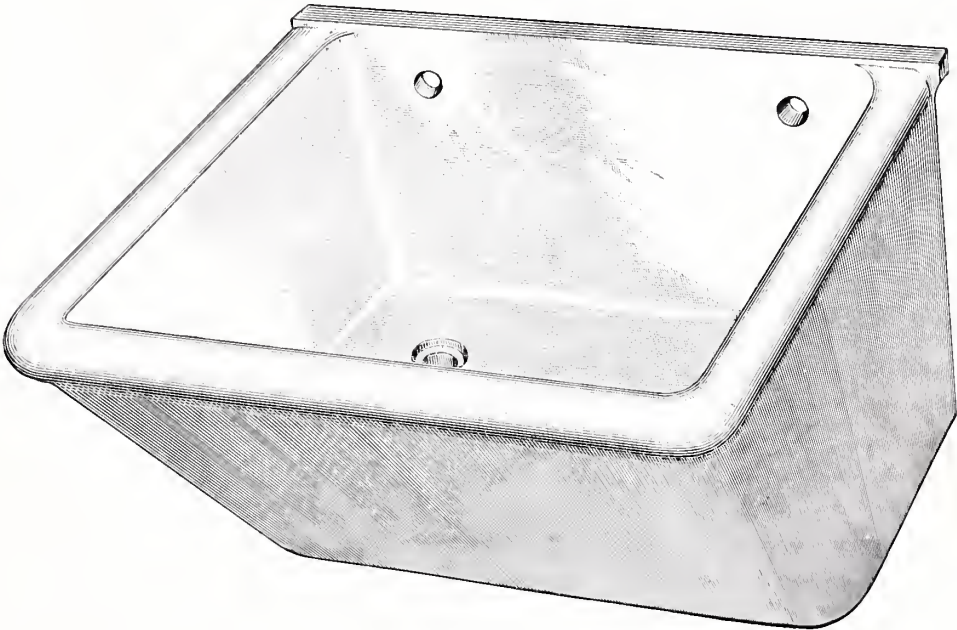


Fig. 1326A.

These Tubs are glazed inside and out. They are made with waste holes and soap pockets, and with or without cockholes or overflow, as ordered.

In each set of two or more Tubs, one Tub is finished with an Ideal Porcelain Washboard, made in one piece with the Tub. If more than one Tub so finished is required, the number ordered will be furnished at an advance of \$1.00 per Tub (with washboard) over the List given below.

SIZE.			PRICES.	
Length.	Width.	Depth.	{ Set of 1 Tub . . . \$33.00 " 2 " . . . 66.00 " 3 " . . . 99.00 }	Include, with Tub, galvanized iron legs only.
(Front and Back.)	(Front to Back.)	(Inside.)		
29 inches.	24 inches.	15 inches.		

Nickel Plated Plug, \$1.00 extra. Nickel Plated Overflow Grate, \$1.50 extra.

Dimensions given above are outside measurements, excepting depth, which is inside.

# IDEAL PORCELAIN FLAT RIM LAUNDRY TUBS.



Fig. 1326B.

Glazed inside only. Made with waste holes and soap pockets, and with or without cockholes and overflow, as ordered.

In each set of two or more Tubs, one Tub is finished with an Ideal Porcelain Washboard, made in one piece with the Tub. If more than one Tub so finished is required, the number ordered will be furnished at an advance of \$1.00 per Tub (with washboard) over the List given below.

SIZES.				PRICES.	
	Length.	Width.	Depth.		
	(Front and Back.)	(Front to Back.)	(Inside.)		
No. 1.	25 inches.	24 inches.	15 inches.	{ Set of 2 Tubs . . . . .	\$44.00
" 2.	27 "	24 "	15 "	" 3 " . . . . .	65.00
" 3.	29 "	24 "	15 "	" 4 " . . . . .	86.00
				" 5 " . . . . .	107.00

These prices include any of above sizes of Laundry Tubs with galvanized iron legs and hardwood (ash) tops.

Dimensions given above are outside measurements, excepting depth, which is inside.

One Tub, without Legs or Top . . . . . \$18.00

	1 Tub.	2 Tubs.	3 Tubs.	4 Tubs.	5 Tubs.
Galvanized Iron Legs . . . . .	\$3.50	5.25	7.00	8.75	10.50
Ash Top . . . . .	2.00	2.75	4.00	5.25	6.50

Nickel Plated Plugs . . . . . Each. \$1.00  
" " Overflow Grate . . . . . 1.50

IDEAL PORCELAIN ALL ROLL RIM  
KITCHEN SINKS.



Fig. 1326C.

These Sinks are glazed both inside and out, and made all roll rim to enable them to be set up with marble slab extending at back from above the sink to the floor, enabling perfect cleanliness to be maintained, and presenting to view the best style of the most advanced sanitary plumbing.

These Sinks are glazed inside and out, and are made with waste holes only.

No. 1.	30 x 20 x 7 inches deep . . . . .	\$27.00
“ 2.	36 x 23 x 7 “ “ . . . . .	32.00

Prices given herewith include Sink only.

Dimensions given above are outside measurements, excepting depth, which is inside.

PRICES OF FITTINGS.

Nickel Plated or Polished Brass Legs . . . . .	Per pair.	\$19.50
“ “ Plug . . . . .	Each.	2.00
“ “ Strainer . . . . .	“	2.00



# IDEAL PORCELAIN THREE-PART ROLL RIM KITCHEN SINKS.



Fig. 1326D.

This Sink is glazed both inside and out, and made with roll rim front and both sides ; the back is flat rim in order to be fitted to marble or hardwood slab, and when so set up presents a beautiful and attractive appearance.

No. 1.	30 x 20 x 7 inches deep . . . . .	\$27.00
“ 2.	36 x 23 x 7 “ “ . . . . .	32.00

Prices given include Ideal Porcelain Three-Part Roll Rim Kitchen Sink only.

Nickel Plated or Polished Brass Legs. . . . .	Per pair.	\$19.50
“ “ Strainer . . . . .		2.00
“ “ Plug. . . . .		2.00

Dimensions given above are outside measurements, excepting depth, which is inside.

IDEAL PORCELAIN FLAT RIM KITCHEN SINKS.



Fig. 1326E.

Ideal Porcelain Flat Rim Kitchen Sinks are glazed inside and made with waste hole only. The flat rim enables them to be set up with hardwood top to rim, when such trimming is desired. The same legs are furnished for these sinks as are used on the Roll Rim Sinks; in addition, prices are quoted on galvanized iron legs, which are very desirable and much less expensive.

No. 1.	30 x 20 x 7 inches deep.	\$12.00
“ 2.	36 x 23 x 7 “ “	16.00

The prices given herewith include nothing but Ideal Porcelain Flat Rim Kitchen Sinks.  
Dimensions given above are outside measurements, excepting depth, which is inside.

Nickel Plated or Polished Brass Legs	Per pair.	\$19.50
Galvanized Iron Legs	“	3.00
Nickel Plated Strainer	Each.	2.00
Hardwood (Ash) Top.	“	2.00



IDEAL PORCELAIN FLAT RIM SLOP  
HOPPERS.



Fig. 1326G.

The Ideal Porcelain Flat Rim Slop Hoppers are glazed inside and out, and are made with waste holes only. They are paneled, as shown in cut, and are usually set up plain or with hardwood (ash) rims.

No. 1.	20 x 16 x 12 inches deep . . . . .	\$12.00
“ 2.	22 x 18 x 12 “ “ . . . . .	15.00

Prices given include Ideal Porcelain Flat Rim Slop Hopper only.  
Dimensions given are outside measurements, excepting depth, which is inside.

Galvanized Iron Stands and Legs . . . . .	Per set (4).	\$5.00
Brass Stands and Legs . . . . .	“ (4).	25.00
Nickel Plated Plugs . . . . .	Each.	2.25
“ “ Strainers . . . . .	“	2.25



# PATENT SELF-CLEANING RANGE BOILER.

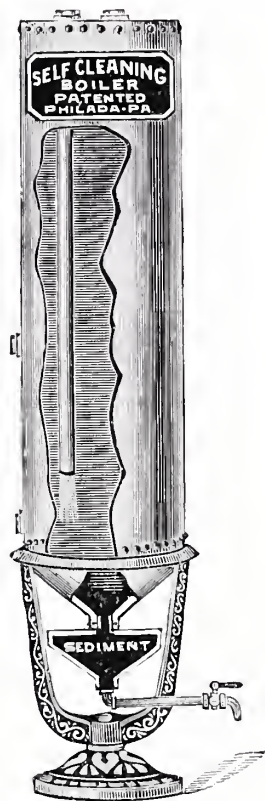


Fig. 1326H.

The mud and dirt conveyed to the boiler sinks to the sediment chamber and is trapped.

The Self-Cleaning Range Boiler is in shape like all other boilers, except that it is provided with a Conical or Funnel-shaped Bottom, terminating in a neck, to which is attached (just below it) a mud drum or trap, to catch, remove, and retain all the sediment and foul matter deposited in the boiler. This mud drum is in shape like the bottom of the boiler (funnel-shaped and terminates also in a neck), and is furnished with a cleanout spigot for the purpose of cleansing both boiler and mud drum.

It will thus be seen that when the cleanout spigot is opened, the water will rush down the conical sides, washing out at the same time most thoroughly all the sediment and accumulation in both boiler and mud drum.

Another important feature of the Self-Cleaning Boiler is that it does not foul and choke the water-back with mud as all other boilers do, for the reason that the pipe conducting the water to the water-back is on the side of the boiler, above the mud line, whereas in other boilers the water is conducted from the bottom, thus carrying with it all the mud and impurities deposited thereon.

The purification of the water by subsidence goes on continually, night and day, particularly at night, when the water is not so much agitated by constant use.

The larger the boiler the purer the water supply.

## ADVANTAGES OF THE SELF-CLEANING RANGE BOILER.

It removes the mud and sediment from the Boiler.

Cleanses the Water-Back.

Supplies more Hot Water.

Furnishes Purer Water.

Does not get out of order.

Will last twice as long as the boiler in general use.  
Weight one-half more.

It is the only Sanitary Boiler made.

It will stand the heaviest pressure.

Is a Common Sense Improvement and is endorsed by all who have used it.

## PRICE-LIST—Fig. 1326H.

Copper Boilers, Heavy Pressure and Planished . . . . . Per gallon. \$2.00

Galvanized Iron Boilers same as regular List on page 432.

Boiler Stands same as List on page 433.

PLUMBERS' FURNACES.

H. J. & C. FURNACE.

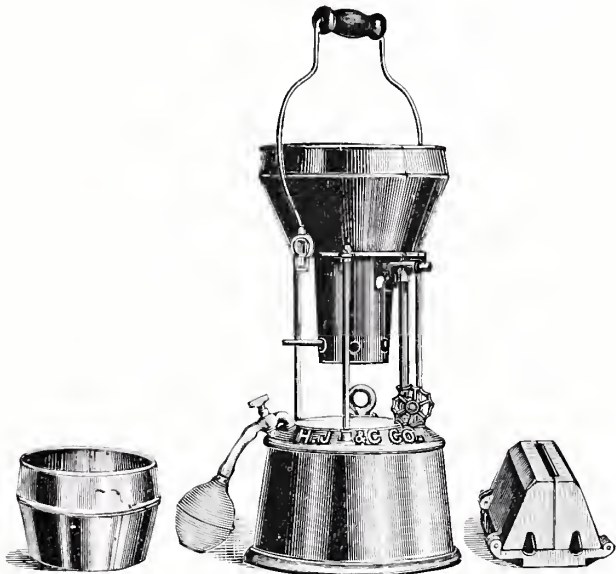


Fig. 1327.

Fig. 1327.	Furnace with 2 Shields, suitable for large or small Solder Pot. . . . .	\$10.00
" 1327.	" " 2 " and Hood for Solder Coppers. . . . .	12.00

REPAIRS FOR H. J. & C. FURNACES.

Fig. 1327.	Bulb . . . . .	\$0.40	Fig. 1327.	Plug . . . . .	\$0.10
" 1327.	Filling Screw. . . . .	.20	" 1327.	Valve . . . . .	.60
" 1327.	Top Plate . . . . .	.30	" 1327.	Wire . . . . .	.10
" 1327.	Burner. . . . .	.20	" 1327.	Ell . . . . .	.10
" 1327.	Coil Cup . . . . .	.50	" 1327.	Handle Ear . . . . .	.10
" 1327.	No. 1 Shield . . . . .	.90	" 1327.	Stem and Wheel . . . . .	.30
" 1327.	" 2 " . . . . .	.90	" 1327.	Connecting Pipe . . . . .	.10
" 1327.	Top on Can. . . . .	.80	" 1327.	Pet Cock . . . . .	.50
" 1327.	Upright . . . . .	.12	" 1327.	Tee . . . . .	.10
" 1327.	Handle. . . . .	.30	" 1327.	Coil . . . . .	.10
" 1327.	Hood or No. 3 Shield . . . . .	2.00	" 1327.	Rubber Bulb . . . . .	.75

COMBINATION PLUMBERS' AND TINSMITHS' CHARCOAL FURNACES.

CLOSED.  
FOR PLUMBERS' USE.

OPEN.  
FOR TINSMITHS' USE.

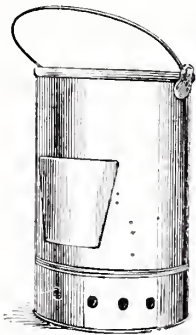


Fig. 1328.

	No.	Size. Inches.	Per doz.
Imported Russia Iron Furnaces	4	8 x 14	\$22.00
	5	9 x 14	24.00
	6	10 x 14	27.00

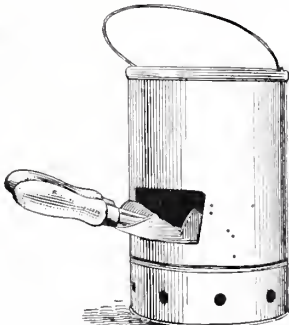


Fig. 1329.

LEAD TRAPS AND BENDS.

FULL S.



Fig. 1330.

THREE-QUARTER S.

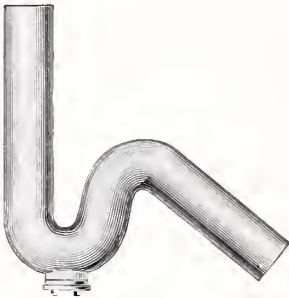


Fig. 1331.

HALF S.

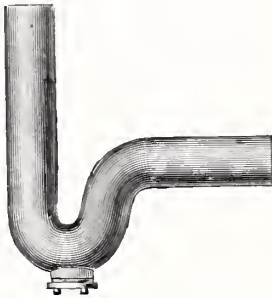


Fig. 1332.

RUNNING.

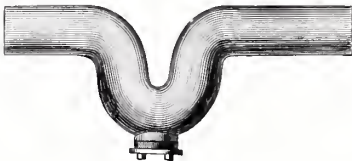


Fig. 1333.

RUNNING Y.

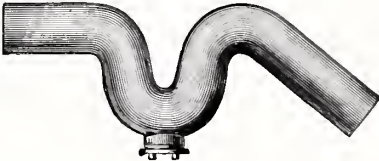


Fig. 1334.

BAG.



Fig. 1335.

LONG BEND.



Fig. 1336.

SHORT BEND.



Fig. 1337.

SIZE . . . . . INCHES.	1 1/4	1 1/2	2	3	4
Fig. 1330. Full S Trap . . . . . Each.	\$0 .65	.80	1.10	1.70	2.20
" 1331. Three-Quarter S Trap . . . . . "	.65	.80	1.10	1.70	2.20
" 1332. One-Half S Trap . . . . . "	.55	.70	1.00	1.35	1.70
" 1333. Running Trap . . . . . "	.60	.75	1.05	1.50	1.85
" 1334. " Y Trap . . . . . "	.65	.80	1.10	1.70	2.20
" 1335. Bag Trap . . . . . "	1.25	1.60	2.00	3.40	4.60
" 1336. Long Bend . . . . . "	.40	.45	.55	1.00	1.35
" 1337. Short " . . . . . "	.30	.40	.45	.75	.90

Standard weight, 6 pound Lead.

# LEAD TRAPS AND BENDS—CONTINUED.

## EXTRA LONG.

FULL S.

THREE-QUARTER S.

HALF S.

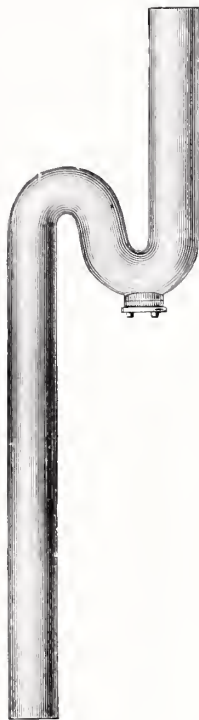


Fig. 1338.



Fig. 1339.



Fig. 1340.

SIZE	INCHES.	1½	1½	2
Fig. 1338. Full S.	Each.	\$0.80	1.00	1.45
1339. Three-Quarter S.	"	.80	1.00	1.45
1340. Half S.	"	.70	.90	1.30

For Traps with Brass Vent Coupling, add to List, 1½-inch, 40 cents ; 1½ and 2-inch, 50 cents.

## EXTENSION BENDS.

18 INCHES LONG.

15 INCHES LONG.



Fig. 1341.



Fig. 1342.

SIZE	INCHES.	1½	1½	2	4
Fig. 1341.	Each.	\$0.55	.67	.85	1.65
1342.	"	.45	.55	.70	1.30



LEAD TRAPS AND FERRULES.

ROUND TRAPS.

PLAIN.                      STRAIGHT VENT.    BENT VENT.                      HOPPER TRAP.



Fig. 1343.



Fig. 1344.



Fig. 1345.

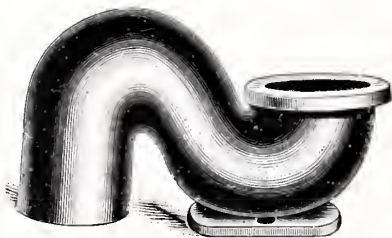


Fig. 1346.

SIZE . . . . . INCHES.	4	5	6
Fig. 1343 . . . . . Per dozen.	\$18.00	27 00	36 00
" 1344 . . . . . "	23 00	32 00	41 00
" 1345 . . . . . "	23 00	32 00	41 00
" 1346. Full S . . . . . Each.	5.50	. .	. .
" 1346. Three-Quarter S . . . . . "	5.50	. .	. .
" 1346. Half S . . . . . "	4.75	. .	. .

“RAYMOND’S” COMBINATION FERRULES.

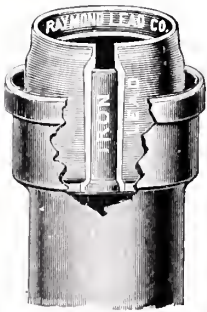


Fig. 1347.

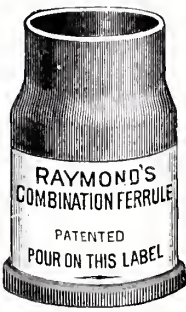


Fig. 1348.

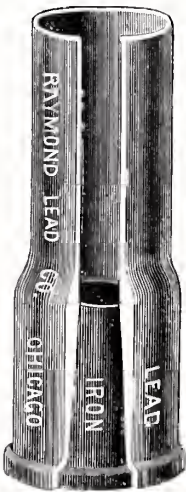


Fig. 1349.

SIZE . . . . . INCHES.	4	6	8	10	12
Fig. 1348. 1½ x 2 inches . . . . .	\$0.23	.35	.45	.50	.55
" 1348. 2 " . . . . .	.18	.30	.40	.45	.50
" 1348. 3 " . . . . .	.25	.40	.55	.70	.75
" 1348. 4 " . . . . .	.35	.55	.70	.85	1.0

4-inch Extra Heavy Ferrule, 5 inches long, 50 cents.

## LEAD TRAPS.

### "RAYMOND'S" TRAPS.

WITH BRASS VENT CONNECTION.

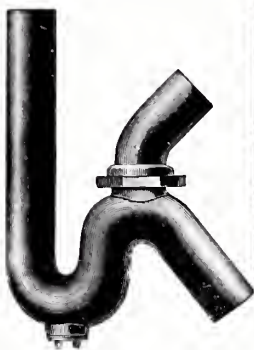


Fig. 1350.

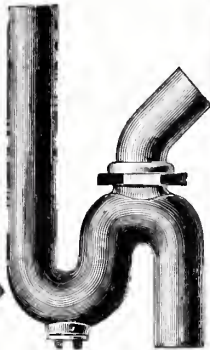


Fig. 1351.

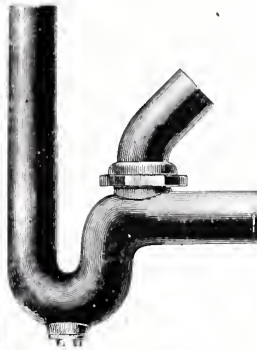


Fig. 1352.

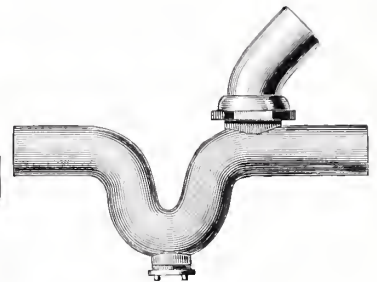


Fig. 1353.

SIZE . . . . . INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	
			1 $\frac{1}{2}$ -in. Vent.	2-in. Vent.
Fig. 1350. Full S . . . . .	\$0.90	1.10	1.45	1.65
" 1351. Three-Quarter S . . . . .	.90	1.10	1.45	1.65
" 1352. Half S . . . . .	.80	1.00	1.30	1.50
" 1353. Running . . . . .	.80	1.00	1.30	1.50

### "BARRY'S" PATENT VENTED TRAPS.

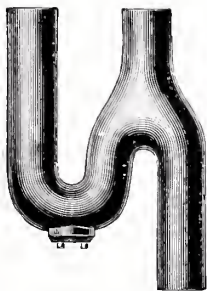


Fig. 1354.

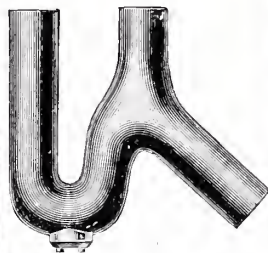


Fig. 1355.

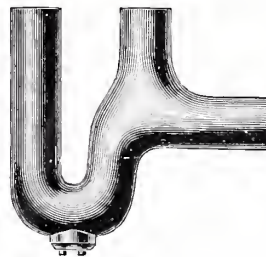


Fig. 1356.

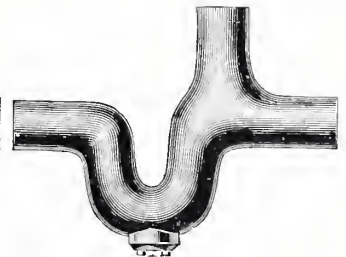


Fig. 1357.

SIZE . . . . . INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Fig. 1354. Full S . . . . .	\$0.60	.70	1.05
" 1355. Three-Quarter S . . . . .	.60	.70	1.05
" 1356. Half S . . . . .	.50	.60	.90
" 1357. Running . . . . .	.50	.60	.90

# LEAD TRAPS—CONTINUED.

## “CLEAN SWEEP” TRAPS.

FULL S.

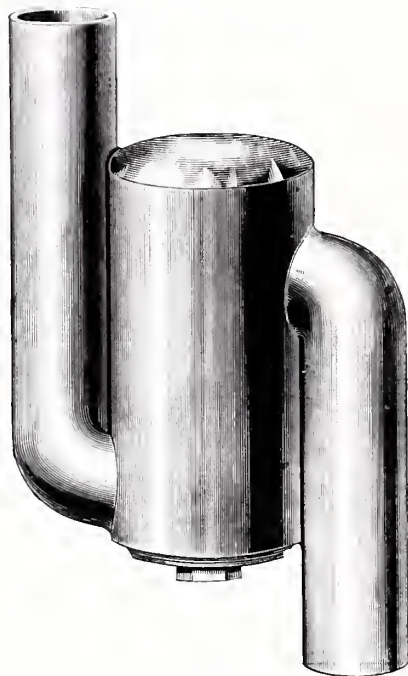


Fig. 1358.

FULL S VENTED.



Fig. 1359.

HALF S.

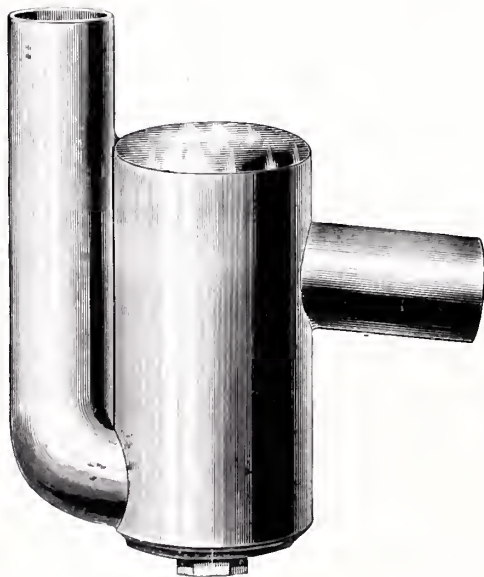


Fig. 1360.

HALF S VENTED.

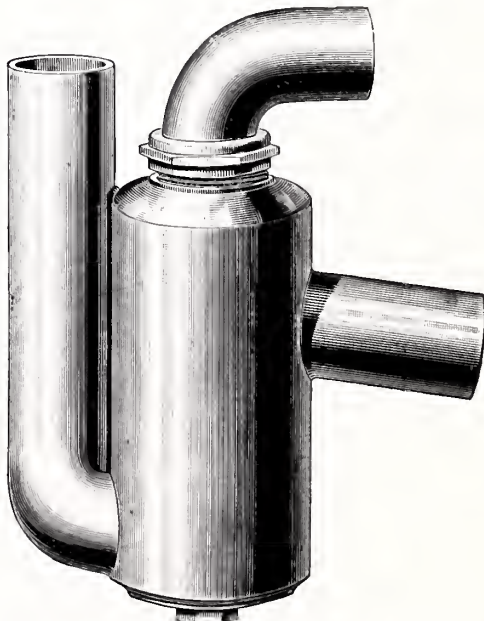


Fig. 1361.

SIZE . . . . . INCHES.	1½	1½	2
Fig. 1358 . . . . . Each.	\$0.80	.95	1.50
“ 1359 . . . . . “	1.20	1.35	2.00

SIZE . . . . . INCHES.	1½	1½	2
Fig. 1360 . . . . . Each.	\$ 0.75	.90	1.30
“ 1361 . . . . . “	1.15	1.30	1.80



## LEAD PIPE.

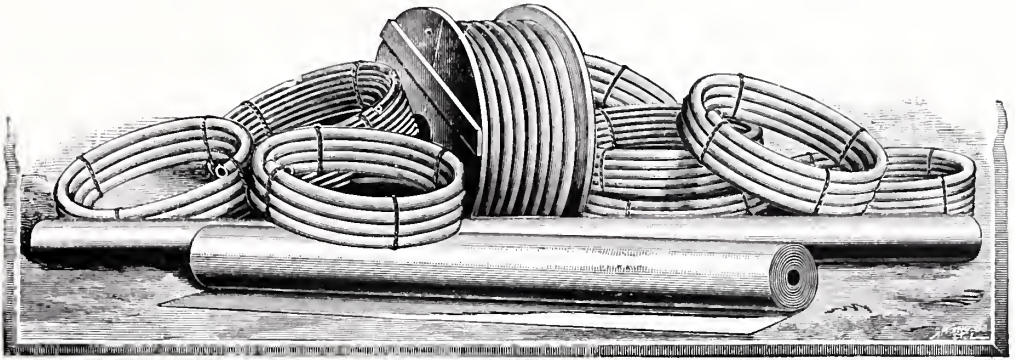


Fig. 1362.

Size.	Weight Per Foot.	Size.	Weight Per Foot.	Size.	Weight Per Foot.	Size.	Weight Per Foot.
$\frac{1}{4}$	5 oz.	$\frac{1}{8}$	1 lb.	1	*2 lbs.	$1\frac{1}{2}$	6 lbs.
$\frac{1}{4}$	8 "	$\frac{1}{8}$	1 lb. 4 oz.	1	2 " 8 oz.	$1\frac{1}{2}$	7 "
$\frac{1}{4}$	11 "	$\frac{1}{8}$	1 " 8 "	1	3 " "	$1\frac{3}{4}$	3 "
$\frac{1}{4}$	8 "	$\frac{1}{8}$	1 " 12 "	1	3 " 8 "	$1\frac{3}{4}$	4 "
$\frac{1}{4}$	10 "	$\frac{1}{8}$	2 lbs.	1	4 " "	$1\frac{3}{4}$	5 "
$\frac{1}{4}$	12 "	$\frac{1}{8}$	2 " 4 "	1	5 " "	$1\frac{3}{4}$	6 "
$\frac{1}{4}$	1 lb.	$\frac{1}{8}$	2 " 8 "	$1\frac{1}{2}$	2 " "	$1\frac{3}{4}$	8 "
$\frac{1}{4}$	1 " 4 oz.	$\frac{1}{8}$	2 " 12 "	$1\frac{1}{4}$	2 " 4 "	2	3 "
$\frac{1}{4}$	1 " 8 "	$\frac{1}{8}$	3 lbs.	$1\frac{1}{4}$	*2 " 8 "	2	4 "
$\frac{1}{4}$	1 " 12 "	$\frac{1}{8}$	1 lb.	$1\frac{1}{4}$	3 " "	2	5 "
$\frac{1}{4}$	2 lbs.	$\frac{1}{8}$	1 " 4 "	$1\frac{1}{4}$	3 " 8 "	2	*6 "
$\frac{1}{4}$	10 oz.	$\frac{1}{8}$	1 " 8 "	$1\frac{1}{4}$	4 " "	2	7 "
$\frac{1}{4}$	12 "	$\frac{1}{8}$	1 " 12 "	$1\frac{1}{4}$	4 " 8 "	2	8 "
$\frac{1}{4}$	1 lb.	$\frac{1}{8}$	2 lbs.	$1\frac{1}{4}$	6 " "	2	9 "
$\frac{1}{4}$	1 " 4 "	$\frac{1}{8}$	2 " 4 "	$1\frac{1}{2}$	2 " 8 "	$2\frac{1}{2}$	3 "
$\frac{1}{4}$	1 " 8 "	$\frac{1}{8}$	2 " 8 "	$1\frac{1}{2}$	3 " "	$2\frac{1}{2}$	5 "
$\frac{1}{4}$	1 " 12 "	$\frac{1}{8}$	3 " "	$1\frac{1}{2}$	*3 " 8 "	$2\frac{1}{2}$	7 "
$\frac{1}{4}$	2 lbs.	$\frac{1}{8}$	3 " 8 "	$1\frac{1}{2}$	4 " "	$2\frac{1}{2}$	8 "
$\frac{1}{4}$	2 " 8 "	$\frac{1}{8}$	1 lb.	$1\frac{1}{2}$	4 " 8 "	$2\frac{1}{2}$	11 "
$\frac{1}{4}$	3 lbs.	$\frac{1}{8}$	1 " 12 "	$1\frac{1}{2}$	5 " "	$2\frac{1}{2}$	14 "
$\frac{1}{4}$	13 oz.	$\frac{1}{8}$					

Weights with \* affixed are as light as should be used for suction pipe. Prices on application.

SHEET LEAD.

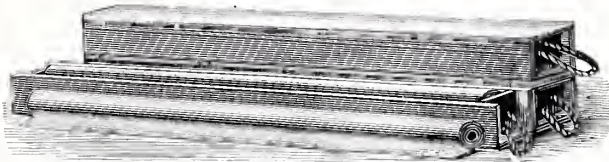


Fig. 1363.

WEIGHTS AND SIZES OF SHEET LEAD.

Pounds per square foot . . . . .	24	3	3½	4	4½	5	6	7	8	9	10	11	12
Wire Gauge No. . . . .	19	18	17	16	15	14	13	12	11	10	9	8	7

Sheet Lead rolled to any other weight per square foot to order.

A square foot of Sheet Lead  $\frac{1}{16}$  of an inch thick weighs four pounds.



METALS.

SOLDER.



Fig. 1364.

BABBITT METAL.



Fig. 1365.



Fig. 1366.

TACK MOULDS.

SINGLE, PLAIN PATTERN.

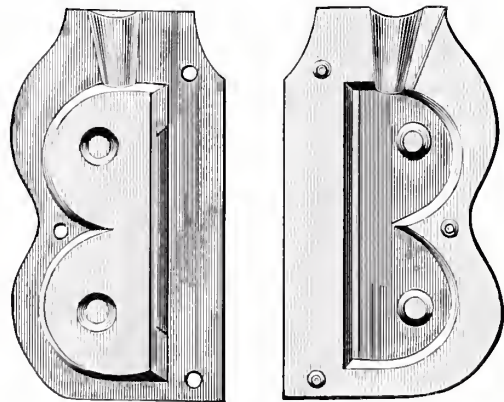


Fig. 1367.

DOUBLE, STAR PATTERN.

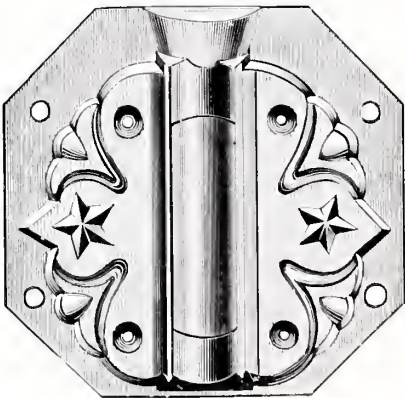


Fig. 1368.

Fig. 1367.	Plain, Single . . . . .	Each.	\$2.50	Fig. 1368.	Star, Single . . . . .	Each.	\$3.50
" 1367.	" Double . . . . .	"	3.50	" 1368.	" Double . . . . .	"	4.50

LEAD PIPE COUPLING.



Fig. 1369.

SIZE . . . . .	INCHES.	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Fig. 1369 . . . . .	Per dozen.	\$3.00	3.00	3.00	3.00	3.00	3.00

# PATENT SPIRAL LOCK-SEAM PIPE AND FITTINGS.



Fig. 1370.

DIAMETER . . . . .	INCHES.	1½	2	2½	3	4	5	6
Fig. 1370. Galvanized . . . . .	Per foot.	\$0.12	.14	.17	.19	.25	.30	.38
" 1370. Tin . . . . .	"	.07	.09	.10	.11	.15	.21	.28

## ADJUSTABLE ELBOWS AND OTHER FITTINGS.



Fig. 1371.

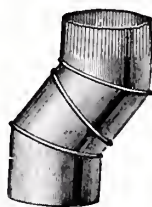


Fig. 1372.

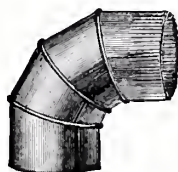


Fig. 1373.



Fig. 1374.



Fig. 1375.

Y.



Fig. 1376.

TEE.

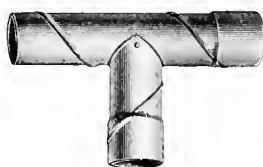


Fig. 1377.

BEND.

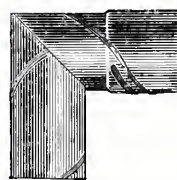


Fig. 1378.

CONDUCTOR CAP.



Fig. 1379.

LOBSTER BACK ELBOW.

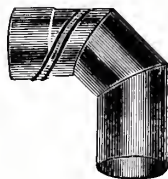


Fig. 1380.

COUPLER.



Fig. 1381.

## GALVANIZED FITTINGS.

DIAMETER . . . . .	INCHES.	1½	2	2½	3	4	5	6
Figs. 1371 to 1375. Adjustable Elbows . . . . .		\$0.20	.20	.25	.30	.40	.55	.70
" 1376 and 1377. Y's and Tees . . . . .		.25	.30	.40	.45	.60	.78	.96
Fig. 1378. One-Quarter and One-Eighth Bends . . . . .		.18	.18	.22	.24	.36	.50	.64
" 1379. Conductor Caps . . . . .		.11	.11	.13	.15	.20	.26	.32
" 1380. Lobster Back Elbows . . . . .		.20	.20	.25	.30	.40	.55	.70
" 1381. Couplers . . . . .		.18	.18	.22	.24	.36	.50	.64

## TIN FITTINGS.

DIAMETER . . . . .	INCHES.	1½	2	2½	3	4	5	6
Figs. 1371 to 1375. Adjustable Elbows . . . . .		\$0.15	.15	.20	.20	.30	.40	.55
" 1376 and 1377. Y's and Tees . . . . .		.15	.20	.25	.30	.45	.60	.78
Fig. 1378. One-Quarter and One-Eighth Bends . . . . .		.12	.12	.16	.18	.24	.36	.50
" 1379. Conductor Caps . . . . .		.10	.10	.13	.15	.20	.25	.30
" 1380. Lobster Back Elbows . . . . .		.15	.15	.20	.20	.30	.40	.55
" 1381. Couplers . . . . .		.12	.12	.16	.18	.24	.36	.50

# CORRUGATED EXPANDING CONDUCTORS.

## GALVANIZED EXPANDING CONDUCTOR.

Fig. 1382.	2-inch Round Pipe . . . . .	Per foot.	\$0.12
" 1382.	3 " " " " . . . . .	"	.15
" 1382.	4 " " " " . . . . .	"	.20
" 1382.	5 " " " " . . . . .	"	.25
" 1382.	6 " " " " . . . . .	"	.30
" 1383.	1½ x 2½ inches Square Pipe . . . . .	"	.12
" 1383.	2½ 3½ " " " " . . . . .	"	.15
" 1383.	2½ 4½ " " " " . . . . .	"	.20
" 1383.	3½ 5 " " " " . . . . .	"	.25

Prices quoted on application for pipe made of other sheet metals.

The Corrugated Expanding Conductor is preferred because it has no Soldered Joints. The Coupling is made by enlarging, not reducing the pipe.



Fig. 1382.



Fig. 1383.

## PATENT STAMPED CORRUGATED ELBOWS AND SHOES.

In these goods the trade find, for the first time, satisfactory expanding Elbows and Shoes, perfect in curve and free from unreliable and unsightly soldered joints.



Fig. 1384.



Fig. 1385.



Fig. 1386.



Fig. 1387.

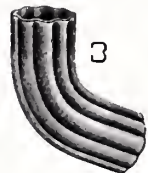


Fig. 1388.

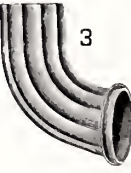


Fig. 1389.

## ROUND OR SQUARE. GALVANIZED.

SIZE . . . . . INCHES.	2	3	4	5	6
Figs. 1384, 1385. No. 1. Per dozen.	\$2.50	2.75	3.50	4.25	4.75
" 1386, 1387. " 2. . . . .	3.00	3.25	4.00	4.75	5.25
" 1388, 1389. " 3. . . . .	3.50	3.75	4.50	5.25	5.75

## CONDUCTOR HEAD.

The Cuts show this Conductor Head, first alone, then slipped into the top of a Corrugated Conductor. It makes a cheap, attractive and convenient finish, no solder being needed.

SIZE. . . . . INCHES.	2	3	4	5	6
Figs. 1390, 1391. . . . . Each.	\$0.12	.15	.20	.25	.30



Fig. 1390.



Fig. 1391.

# VENTILATORS, ETC.

## "WORLD" VENTILATOR AND CHIMNEY CAP. GALVANIZED IRON.

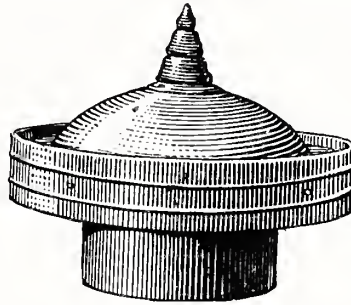


Fig. 1392.

Fig. 1392.	2-inch	Each.	\$1.00	10-inch	Each.	\$5.75
" 1392.	2½ "	"	1.00	12 "	"	6.75
" 1392.	2¾ "	"	1.00	14 "	"	13.00
" 1392.	3 "	"	1.50	16 "	"	20.00
" 1392.	3½ "	"	1.50	18 "	"	27.00
" 1392.	4 "	"	1.75	20 "	"	33.00
" 1392.	4½ "	"	2.00	24 "	"	40.00
" 1392.	5 "	"	2.50	30 "	"	65.00
" 1392.	5½ "	"	2.85	36 "	"	120.00
" 1392.	6 "	"	3.40	40 "	"	180.00
" 1392.	7 "	"	4.00	48 "	"	240.00
" 1392.	8 "	"	4.65	60 "	"	360.00

For Smoky Chimneys and Imperfect Flues. It is made of best Bloom Iron, strongly riveted and galvanized after it is made up. It will work at any angle. For Ventilation of Cars, Churches, Water Closets, Factories, Schools, Round Houses, Malt Houses, Stables, Breweries, Ice Houses, Steamboats, Mills, Halls, Skylights, or wherever circulation of air is necessary.

## GALVANIZED WIRE CONDUCTOR STRAINERS.

Fig. 1393.	2-inch	Per dozen.	\$2.50
" 1393.	3 "	"	3.00
" 1393.	4 "	"	3.50
" 1393.	5 "	"	4.00
" 1393.	6 "	"	4.50
" 1393.	8 "	"	10.50

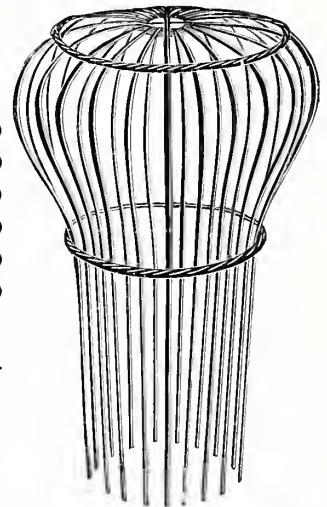


Fig. 1393.



Fig. 1394.

## CORRUGATED HINGE CON- DUCTOR HOOKS FOR WOOD.

### GALVANIZED.

SIZE . . . . .	INCHES.	2	3	4	5
Fig. 1394.	Short Shank . . . . Per dozen.	\$0.72	.84	1.08	1.44
" 1394.	Long " . . . . . "	.96	1.08	1.44	1.80
" 1394.	For Brick . . . . . "	1.08	1.44	1.80	2.16



# ROTARY VENTILATORS.

FENN'S PATENT.

Fig. 1395.	4-inch . . . . .	\$4.00
" 1395.	6 " . . . . .	6.00
" 1395.	8 " . . . . .	8.00
" 1395.	10 " . . . . .	10.00
" 1395.	12 " . . . . .	12.00
" 1395.	15 " . . . . .	20.00
" 1395.	18 " . . . . .	35.00
" 1395.	21 " . . . . .	43.00
" 1395.	24 " . . . . .	50.00
" 1395.	30 " . . . . .	75.00

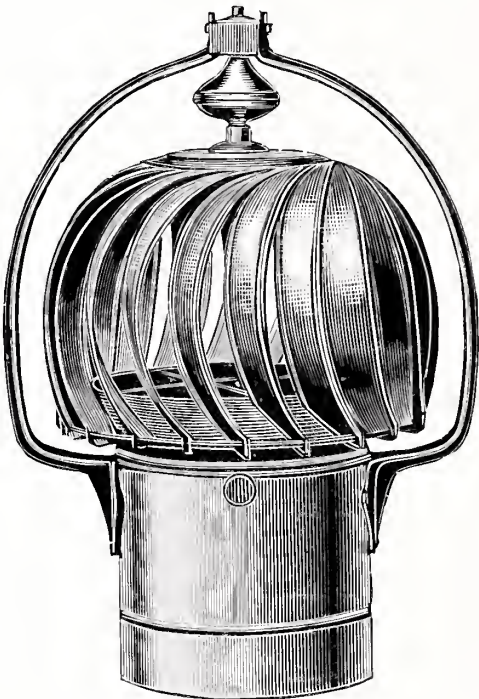


Fig. 1395.

FENN'S ARCHIMEDEAN.

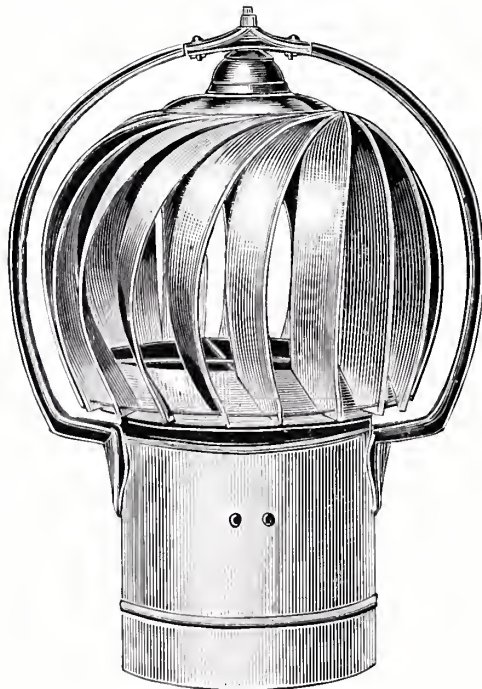


Fig. 1396.

Fig. 1396.	6-inch . . . . .	\$6.00
" 1396.	8 " . . . . .	8.00
" 1396.	10 " . . . . .	10.00
" 1396.	12 " . . . . .	12.00
" 1396.	15 " . . . . .	20.00
" 1396.	18 " . . . . .	35.00
" 1396.	21 " . . . . .	43.00
" 1396.	24 " . . . . .	50.00
" 1396.	30 " . . . . .	75.00

# PLUMBERS', STEAM AND GASFITTERS' TOOLS.

ELASTIC LEAD PIPE BENDER.



Fig. 1397.

SAMPLE BEND.



Fig. 1398.

**DIRECTIONS**—Shove the Bender into the pipe until the point is reached where the bend is to be made, and bend the pipe. The Bender can then be easily moved. If the bends in the pipe are very short or close, and the Bender does not come out of the pipe easily, it can be made to do so by slackening up a little on the bends. To make a bend midway in a long length of pipe, attach a wire or strong cord to the end of the Bender, so as to draw it in and out. If the bends are short, or more than one in number, the Bender will work in and out more easily by lubricating the Bender or the inside of the pipe with oil, soap or water.

A Drift Plug sent with each Bender.

Fig. 1397.	No. 1,	Long Bender,	2 feet long,	for 1-inch Lead Pipe	.....	\$1.25
" 1397.	No. 2,	"	"	" 1 1/4 "	"	1.50
" 1397.	No. 3,	"	"	" 1 1/2 "	"	1.75
" 1397.	No. 4,	"	"	" 2 "	"	2.00
Set of Four Size Benders, 2 feet long						6.00
Fig. 1397.	No. 1,	Short Bender,	18 inches long	.....		.90
" 1397.	No. 2,	"	" 18 "	"	"	1.15
" 1397.	No. 3,	"	" 18 "	"	"	1.35
" 1397.	No. 4,	"	" 18 "	"	"	1.50
Set of Four Size Benders, 18 inches long						4.50

## ASBESTOS LEAD JOINT RUNNER.

This tool fills a long-felt want of something that would be easy to handle, convenient to apply, and adapted to different sizes where joints are to be made in iron, soil, water or gas pipes. It is easily and quickly applied. It cannot be destroyed no matter how hot you pour your lead, as it can be thrown into a fire and made red-hot without injuring it, and you can run joints with it no matter how hot your lead is. It is strong and elastic, and will adapt itself to any unevenness in the joint.

ROUND RUNNER APPLIED.

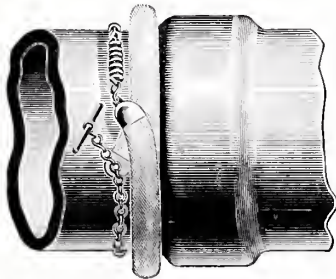


Fig. 1399.

SQUARE RUNNER APPLIED.

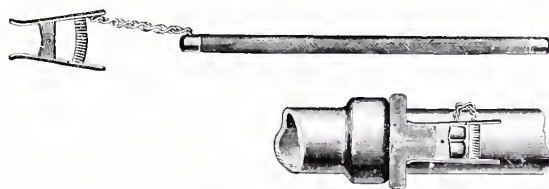


Fig. 1400.

Fig. 1400.	No. 1,	Improved Asbestos Lead Joint Runner, square	.....	\$1.25
" 1400.	No. 2,	"	"	1.50
" 1400.	No. 3,	"	"	2.25
" 1400.	No. 4,	"	"	3.00
" 1401.	No. 1,	Asbestos Lead Joint Runner, round	.....	.90
" 1401.	No. 2,	"	"	1.15
" 1401.	No. 3,	"	"	1.50
" 1401.	No. 4,	"	"	1.75

Larger size Joint Runners made to order.

Fig. 1401.

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

OCTAGON FLOOR CHISEL.



Fig. 1402.

Fig. 1402 . . . . . Per dozen. \$22.00  
Length, 16 inches. Width of Blade, 4 inches.

ROUND FLOOR CHISEL.



Fig. 1403.

SIZE . . . . . INCHES. 15 18  
Fig. 1403 . . . . . Per dozen. \$22.00 24.00  
Width of Blade, 3 inches.

WOOD CHISEL.



Fig. 1404.

SIZE . . . . . INCHES. 10½ 14  
Fig. 1404. Small, 1-in. Blade. Per doz. \$6.00 . .  
" 1404. Large, 2 " " " . . 11.50

COLD CHISEL.



Fig. 1405.

SIZE . . IN. 6 8 10 12 16 20  
Per dozen . \$5.00 6.00 7.25 7.50 11.00 27.00

ROUND NOSE CHISEL.



Fig. 1406.

Fig. 1406 . . . . . Per dozen. \$6.00

HALF-ROUND NOSE CHISEL.



Fig. 1407.

Fig. 1407 . . . . . Per dozen. \$6.00

CAPE CHISEL.



Fig. 1408.

Fig. 1408 . . . . . Per dozen. \$6.00

DIAMOND NOSE CHISEL.



Fig. 1409.

Fig. 1409 . . . . . Per dozen. \$6.00

FIRMER CHISEL.



Fig. 1410.

SIZE . . . . . INCHES. 1 1½ 2  
Fig. 1410 . . Per dozen. \$12.00 14.00 16.00

FIRMER GOUGE.



Fig. 1411.

SIZE . . . . . INCHES. 1 1½ 2  
Fig. 1411 . . Per dozen. \$9.50 11.50 13.00

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

GAS PLIERS.



Fig. 1412.

Black Handles, per doz.

SIZE. IN.	8	9	10	11	12	13	14
Fig. 1412.	\$12.00	14.00	15.00	16.00	18.00	21.00	24.00

All polished, per doz.

SIZE. IN.	8	9	10	11	12	13	14
Fig. 1412.	\$14.00	16.00	17.00	18.00	20.00	23.00	26.00

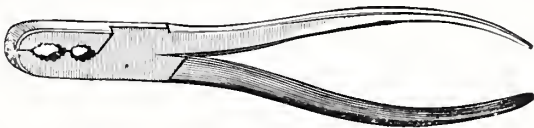


Fig. 1413.

SIZE . . . . . INCHES.	7
Fig. 1413. Polished, complete. Per doz.	\$10.00

Add, for Nickel Plating, \$1.00 per doz., net.

GAS PLIERS.



Fig. 1414.

SIZE . . . . . INCHES.	5	6
Fig. 1414. Polished, complete. Per doz.	\$8.00	9.00

Add, for Nickel Plating, \$1.00 per doz.

EXTRA HEAVY CUTTING NIPPERS.

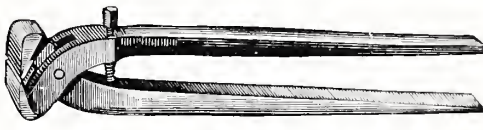


Fig. 1415.

With Set Screw, per pair.

SIZE . . . . IN.	7	8	9	10	12	14
Fig. 1415. . . .	\$2.50	2.88	3.25	3.60	4.25	5.00

SINGLE JOINT CUTTING NIPPERS.

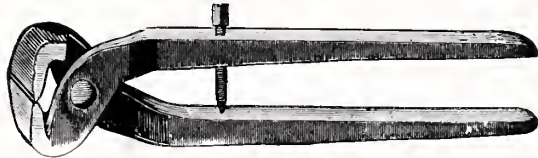


Fig. 1416.

SIZE. . . . . INCHES.	8	10	12
Fig. 1416. All Steel . . Per doz.	\$2.50	3.00	3.50

EXTRA QUALITY CUTTING NIPPERS.



Fig. 1417.

SIZE. . . . INCHES.	5	6	7	8
Fig. 1417. . Per doz.	\$15.00	20.00	24.00	30.00

CUTTING PLIERS.

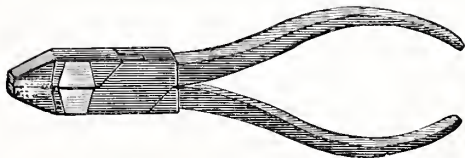


Fig. 1418.

SIZE . . . INCHES.	4	4½	5	5½	6	7
Fig. 1418. Per doz.	\$5.60	5.60	5.60	6.25	6.75	8.50

STEEL PLIERS.



Fig. 1419.

SIZE . . . . . INCHES.	5	6	7
Fig. 1419. . . . . Per doz.	\$6.00	7.00	8.00



PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

SCREW DRIVER.



Fig. 1420.

SIZE . IN.	3	4	5	6	7	8	9	10
Per doz.	\$2.00	2.00	3.00	3.50	4.00	4.60	5.25	6.25

PATENT DOUBLE WASHER CUTTER.



Fig. 1421.

To cut Washers up to 1½ inches diameter.

Fig. 1421 . . . . .	Each.	\$2.75
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CHIPPING KNIFE.



Fig. 1422.

SIZE . . . . . INCHES.	4½	5	6
Fig. 1422 . . . . . Per dozen.	\$7.00	7.00	7.00

CAULKING CHISEL.



Fig. 1423.

Fig. 1423 . . . . .	Per dozen.	\$5.00
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WASHER CUTTER.

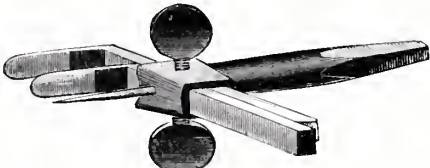


Fig. 1424.

Fig. 1424, Black Handle . .	Per dozen.	\$10.00
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COMPASSES.



Fig. 1425.

SIZE . . . . . INCHES.	5	6	7	8
Fig. 1425 . . . . . Per dozen.	\$3.50	4.00	4.75	5.50

WASHER CUTTER.

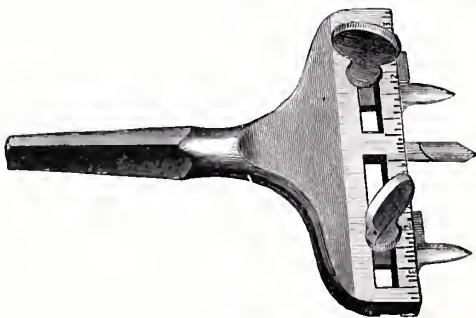


Fig. 1426.

Fig. 1426 . . . . .	Per dozen.	\$15.00
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CANDLESTICK.

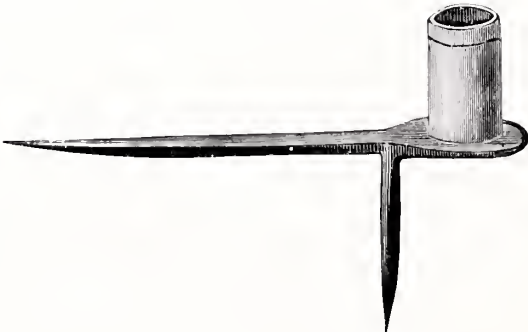


Fig. 1427.

Fig. 1427 . . . . .	Per dozen.	\$3.00
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# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

TAP BORER.

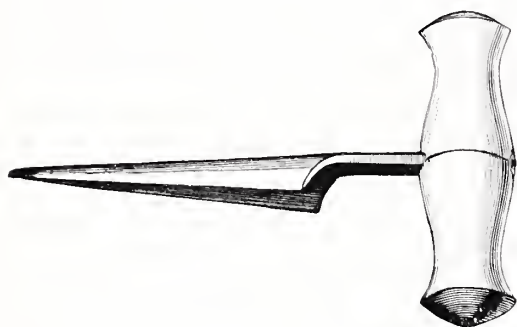


Fig. 1428.

Philadelphia Pattern, Extra Heavy Shank.  
Fig. 1428. . . . . Per dozen. \$5.00

TAP BORER.

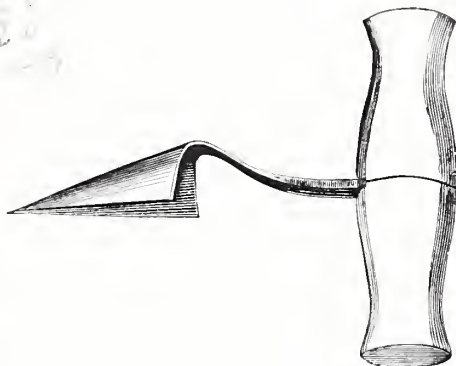


Fig. 1429.

New York Pattern, Extra Heavy Shank.  
Fig. 1429. . . . . Per dozen. \$5.00

BASIN WRENCH.

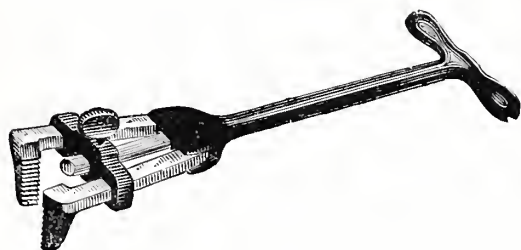


Fig. 1430.

Buzzell's Patent.  
Fig. 1430 . . . . . Per dozen. \$22.00

BASIN WRENCH, COMMON.



Fig. 1431.

Fig. 1431. . . . . Per dozen. \$7.50

BENDING PIN.



Fig. 1432.

Fig. 1432. . . . . Per dozen. \$3.50  
" 1432. One End Straight . . . . . 3.50

SIZE . . . INCHES. 2½ 3 3½ 4 5 6 7 8  
Fig. 1433 . Per doz. \$3.75 4.65 5.50 6.50 8.75 10.00 24.00 30.00

LADLE.



Fig. 1433.

Single or Double Lip, forged of Best Charcoal  
Iron, Extra Heavy.

RASP.



Fig. 1434.

SIZE . . . . . INCHES. 10 12 14  
Fig. 1434 . . . . . Each. \$0.40 .60 .80

FILE.



Fig. 1435.

SIZE . . . . . INCHES. 10 12 14  
Fig. 1435. Half-Round . Each. \$0.40 .60 .80  
" 1435. Flat . . . . . " .40 .60 .80

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

ROUND IRON.



Fig. 1436.

NUMBER . . . . .	1	2	3
Fig. 1436 . . . Per doz.	\$8.00	11.00	13.00

POT HOOK.



Fig. 1437.

Fig. 1437 . . . . .	Each.	\$1.50
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COPPER POINTED BOLT.



Fig. 1438.

Fig. 1438. . . . .	Per lb.	\$0.50
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COPPER POINTED BOLT.



Fig. 1439.

Fig. 1439. . . . .	Per lb.	\$0.50
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SOLDERING COPPER.



Fig. 1440.

Fig. 1440. Hatchet Pattern . . .	Per lb.	\$0.50
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ROOFERS' COPPER BOLT.



Fig. 1441.

Fig. 1441. . . . .	Per lb.	\$0.50
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SINGLE EDGE SAW.

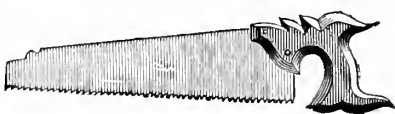


Fig. 1442.

SIZE . . . . . INCHES.	12	14	16	18
Fig. 1442 . . . Per doz.	\$7.70	8.75	9.75	11.00

COMPASS SAW.



Fig. 1443.

SIZE . . . INCHES.	8 <sup>1/2</sup>	10	12	14	16	18
Fig. 1443. Per doz.	\$4.00	4.25	4.25	4.75	5.00	5.25

DOUBLE EDGE SAW.

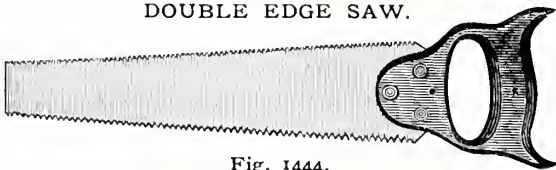


Fig. 1444.

SIZE . . . . . INCHES.	12	14	16	18
Fig. 1444 . . . . . Per dozen.	\$8.75	9.75	11.00	12.00

TINNERS' SNIPS.

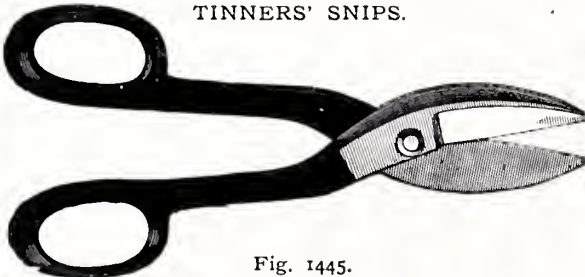


Fig. 1445.

Fig. 1445. Full Length . . . . .	Inches.	10	11	12 <sup>1/2</sup>	14	15
" 1445. Length of Cut . . . . .	"	2 <sup>1/2</sup>	3	3 <sup>1/2</sup>	4	4 <sup>1/2</sup>
" 1445. . . . . Per pair.		\$1.75	1.90	2.50	3.25	4.00

# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

TWO-FOOT IRON SQUARE.

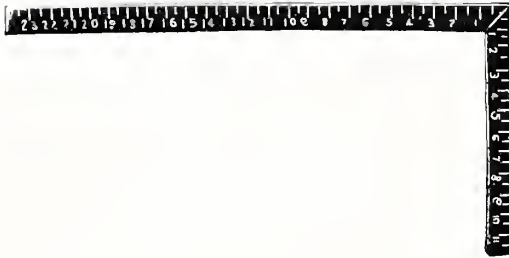


Fig. 1446.

Fig. 1446.	1½ in.,	marked one side,	per doz.	\$6.00
"	1446.	1½ "	" both sides	" 10.00
"	1446.	2 "	" " "	" 14.00

TORCH.



Fig. 1447.

Fig. 1447.	Brass, with Side Filler,	per doz.	\$25.00
"	1447. Without	" "	" 21.00
"	1447. Tin, with	" "	" 19.00
"	1447. " common	" . . . .	" 9.50

POCKET SPIRIT LEVEL.

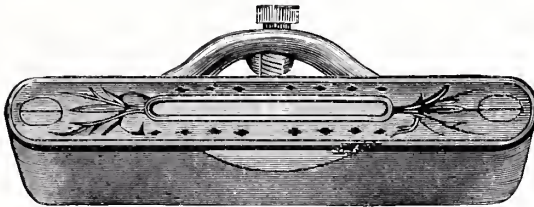


Fig. 1448.

Fig. 1448.	Iron . . . . .	\$1.80
"	1448. Brass Top . . . . .	2.75

CALIPERS.

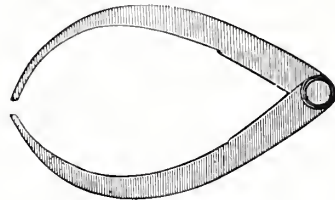


Fig. 1449.

SIZE . . . INCHES.	2½	3	4	5	6½
Fig. 1449 . Per doz.	\$3.00	3.00	3.25	3.75	4.25

FANCY CALIPERS.

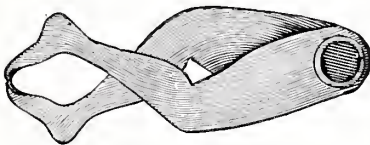


Fig. 1450.

Fig. 1450 . . . . .	Per dozen.	\$3.50
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DUSTER.



Fig. 1451.

Fig. 1451 . . . . .	Per dozen.	\$7.00
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FLAT SOIL BRUSH.

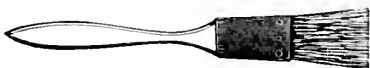


Fig. 1452.

Fig. 1452 . . . . .	Per dozen.	\$1.00
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ROUND SOIL BRUSH.



Fig. 1453.

Fig. 1453 . . . . .	Per dozen.	[\$0.75
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PLUMBERS', STEAM AND GASFITTERS'  
TOOLS — CONTINUED.

PLUMB BOB.

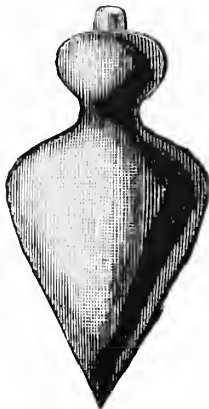


Fig. 1454.

Fig. 1454.	Iron, Large . . . . .	Per dozen.	\$2.00
" 1454.	" Small . . . . .	"	1.20

SOIL CUP.



Fig. 1455.

Fig. 1455.	Copper, Small . . . . .	Per dozen.	\$5.00
" 1455.	" Large . . . . .	"	5.50
" 1455.	Brass, " . . . . .	"	5.25

BLOW PIPE.



Fig. 1456.

Fig. 1456.	Taper . . . . .	Per dozen.	\$10.75
" 1456.	Straight . . . . .	"	7.00

BLOW PIPE.



Fig. 1457.

Fig. 1457.	With Bulb . . . . .	Per dozen.	\$7.00
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ASSES' SKIN MEASURING TAPE.

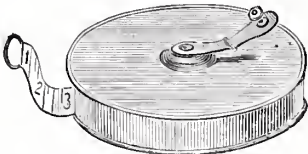


Fig. 1458.

LENGTH . . . . .	FEET.	25	50	75	100
Fig. 1458 . . . . .	Per dozen.	\$5.50	7.50	11.50	13.50

POCKET RULE.



Fig. 1459.

Fig. 1459.	2 ft., 4 Fold . . . . .	Per dozen.	\$2.00
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GREASE, ROSIN AND FLOUR BOX.

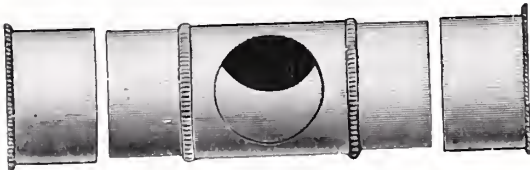


Fig. 1461.

Fig. 1461.	Brass, Small . . . . .	Per dozen.	\$15.00
" 1461.	" Medium . . . . .	"	17.00
" 1461.	" Large . . . . .	"	19.50

TWO-FOOT LEVEL.



Fig. 1460.

Fig. 1460 . . . . .	Per dozen.	\$11.50
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RIVET SETS.



Fig. 1462.

SIZE . . . . .	00	0	1	2	3	4	5	6
Per doz . . . . .	\$7.25	6.35	5.50	5.50	4.50	4.50	3.60	3.60

# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

SIDE EDGE.

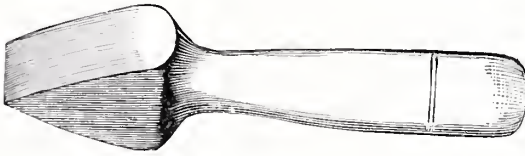


Fig. 1463.

Fig. 1463. Boxwood. . . . . Per dozen. \$8.50  
 " 1463. Dogwood. . . . . " 5.00

MALLET.

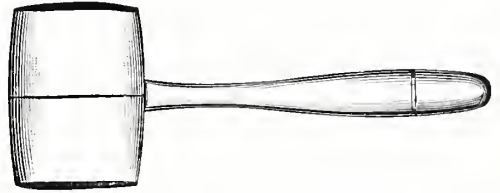


Fig. 1464.

SIZE . . . . . INCHES.  $2\frac{1}{2}$  3  $3\frac{1}{2}$   
 Fig. 1464. Hickory, Per doz. \$5.50 7.00 8.00  
 " 1464. Lignum-vitæ . . . 7.50 10.00 12.00

TURN PIN.

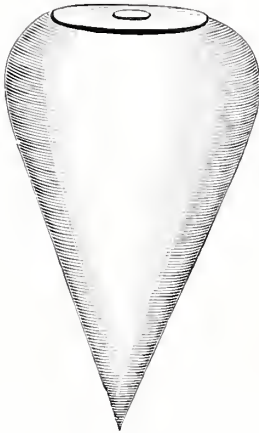


Fig. 1465.

Fig. 1465. Boxwood, No. 1, 2, 3. Per doz. \$3.00  
 " 1465. Dogwood, No. 1, 2, 3. " 1.75

DRESSER.



Fig. 1466.

Fig. 1466. Boxwood. . . . . Per dozen. \$10.00  
 " 1466. Dogwood. . . . . " 8.00

BOSSING STICK.



Fig. 1467.

Fig. 1467. Boxwood . . . . . Per doz. \$10.00  
 " 1467. Dogwood . . . . . " 8.00

DRIFT PLUG.

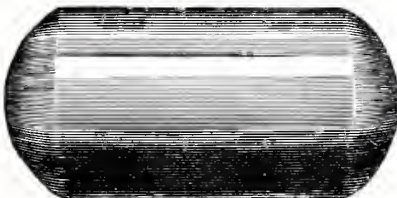


Fig. 1468.

SIZE . . . . . INCHES. 1  $1\frac{1}{4}$   $1\frac{1}{2}$  2  
 Fig. 1468 . . . Per doz. \$2.00 2.00 2.00 2.00

STEEL FACE PLANE.



Fig. 1469.

Fig. 1469 . . . . . Each. \$0.75

PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

PLUMBERS' HAMMER.



Fig. 1470.

Fig. 1470.	Small . . . . .	Per dozen.	\$9.00
"	1470. Large . . . . .	"	12.00

MACHINISTS' HAMMER, STRAIGHT PENE.



Fig. 1471.

WEIGHT . . . . .	LBS.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$
Fig. 1471 . . . . .	Per doz.	\$12.00	12.00	12.50	13.50
WEIGHT . . . . .	LBS.	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$
Fig. 1471 . . . . .	Per doz.	\$14.50	15.50	16.50	19.00

MACHINISTS' HAMMER, BALL PENE.



Fig. 1472.

WEIGHT . . . . .	LBS.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 1472 . . . . .	Per dozen.	\$12.00	12.00
"	1473 . . . . .	\$12.00	12.00

MACHINISTS' HAMMER, CROSS PENE.



Fig. 1473.

	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$
Fig. 1473 . . . . .	12.50	13.50	14.50	15.50	16.50	19.00
"	12.50	13.50	14.50	15.50	16.50	19.00

SHAVE HOOKS.



Fig. 1474.

Fig. 1474.	Oval . . . . .	Per dozen.	\$3.50
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Fig. 1476.

Fig. 1476.	$\frac{1}{2}$ Oval . . . . .	Per dozen.	\$3.50
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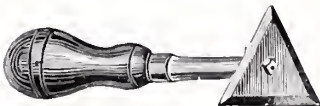


Fig. 1478.

Fig. 1478.	Triangle . . . . .	Per dozen.	\$3.50
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SHAVE HOOK BLADES.



Fig. 1475.

Fig. 1475 . . . . .	Per dozen.	\$1.20, net.
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Fig. 1477.

Fig. 1477 . . . . .	Per dozen.	\$1.20, net.
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Fig. 1479.

Fig. 1479 . . . . .	Per dozen.	\$1.20, net.
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# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

PLUMBERS' BAG.

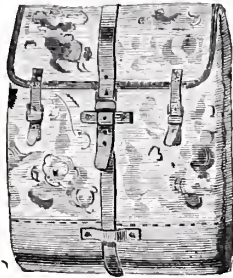


Fig. 1480.

Fig. 1480.	Plain, net. . . . .	Each.	\$3.00
" 1480.	Leather Bottom, net. . . . .	"	3.50
" 1480.	" " and Sides, net. . . . .	"	4.00

LOOKING GLASS.



Fig. 1481.

Fig. 1481.	. . . . .	Per dozen.	\$4.00
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PLUMBERS' BAG.

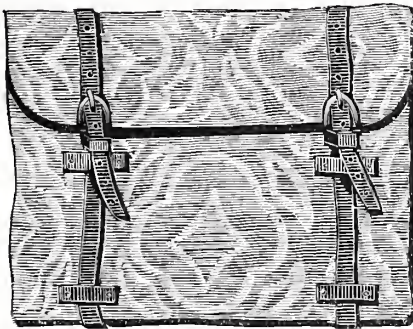


Fig. 1482.

New Pattern.

Fig. 1482.	Plain . . . . .	Each.	\$3.25
" 1482.	Leather Bottom . . . . .	"	3.75
" 1482.	" " and Sides " . . . . .	"	4.25

WIPING CLOTH.



Fig. 1483.

Fig. 1483.	Moleskin . . . . .	Per dozen.	\$2.75
" 1483.	Ticking . . . . .	"	2.00

TRIMO BASIN WRENCH.

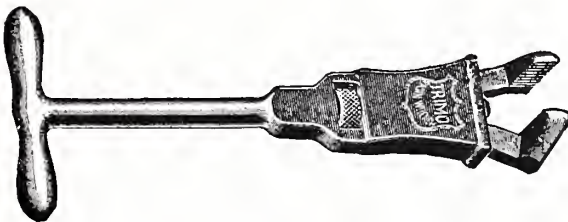


Fig. 1484.

Fig. 1484	. . . . .	Each.	\$1.25
" 1484.	Extra Jaws . . . . .	"	.50
" 1484.	" Nuts . . . . .	"	.20
" 1484.	" Springs. . . . .	"	.10
" 1484.	" Screws . . . . .	"	.20

COILED OAKUM—FOR CAULKING IRON PIPE AND FITTINGS.

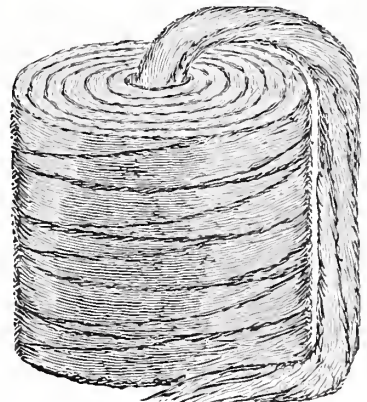


Fig. 1485.

Fig. 1485.	50-lb. Bale . . . . .	\$5.00
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PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

MALLEABLE DIE PLATE, Nos. 0 TO 1 3-4.

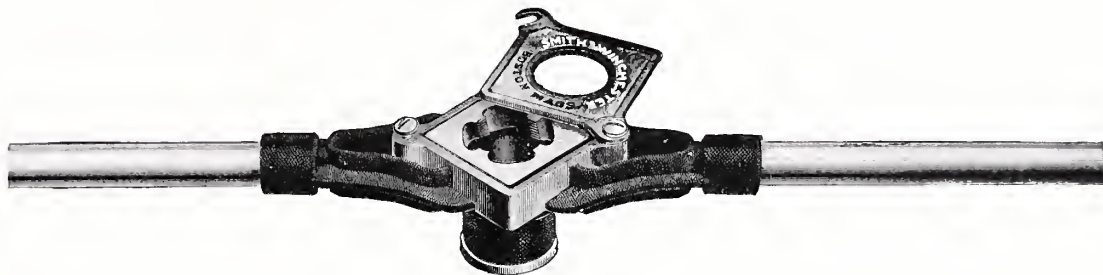


Fig. 1490.

MALLEABLE DIE PLATE, No. 2.

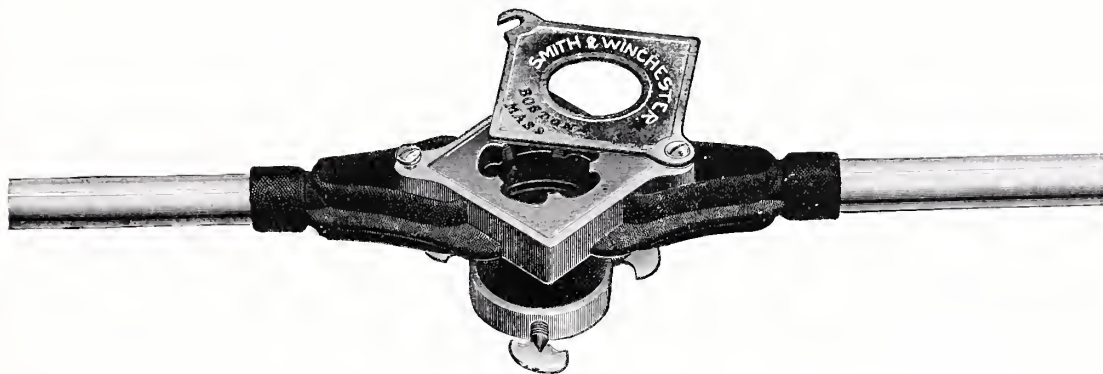


Fig. 1491.

NUMBER . . . . .	*00	0	1	1½	1¾	2	3	4, 4-Arm.
Pipe Sizes of Dies. . .	$\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1, 1¼	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1	$\frac{3}{4}$ , 1, 1¼	1, 1¼, 1½	1½, 1½, 2	2½, 3	2½, 3
Dimensions of Dies . .	2 x 2 x ½	2 x ½	2½ x ¾	3 x ¾	3 x ¾	4 x ¾	5 x 1¼	5 x 1¼
Complete, with Right- Hand Dies . . . . .	\$13.50	9.50	15.00	13.50	13.50	20.00	43.00	51.00
Stocks only . . . . .	3.50	3.50	5.00	6.00	6.00	9.50	25.00	33.00
Extra Dies, Right or Left . . . . .	2.00	1.50	2.00	2.50	2.50	3.50	9.00	9.00
Extra Guides . . . . .	.25	.25	.35	.45	.45	.60	1.00	1.00
Die Frames, for using Small Dies . . . . .	. .	. .	.30	.40	.40	.50	.60	.60

\*No. 00, for Brass Pipe.

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

MILLER'S RATCHET DIE STOCK.

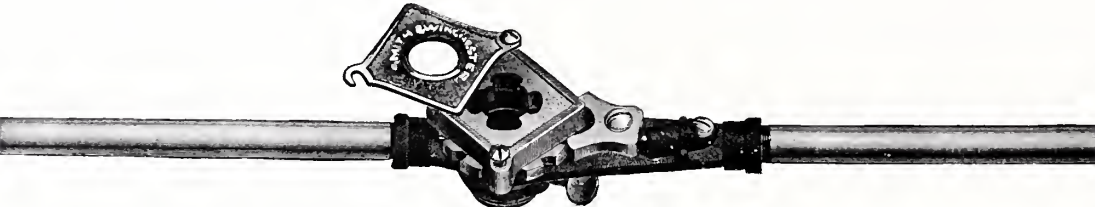


Fig. 1492.

NUMBER . . . . .	A	B	*C	*D	*E
Dies with each Stock . . . . .	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{4}$ to 1	1 to $1\frac{1}{2}$	$1\frac{1}{4}$ to 2	$2\frac{1}{2}$ to 3
Dimensions of Dies . . . . .	$2 \times \frac{1}{2}$	$2\frac{1}{2} \times \frac{3}{4}$	$3 \times \frac{3}{4}$	$4 \times \frac{7}{8}$	$5 \times 1\frac{1}{4}$
Fig. 1492. Stock with Right-Hand Dies, complete . .	\$13.00	15.00	18.50	20.00	43.00
" 1492. Stock without Dies . . . . .	7.50	7.50	13.00	13.50	29.00
" 1492. Extra Dies, Right or Left-Hand . . . . .	1.10	1.50	1.80	2.50	7.00
" 1492. Guides . . . . .	.20	.25	.35	.45	.75
" 1492. Die Frames . . . . .	. .	.22	.30	.38	.45

\*Sizes C, D and E have Leader Screws.

COMBINATION DIE STOCK. No. 0.

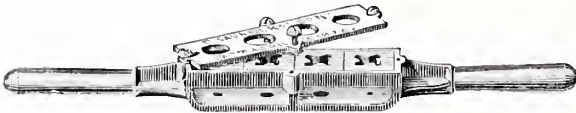


Fig. 1493.

No. 00.



Fig. 1494.

Fig. 1493. No. 0. Threads $\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ and $\frac{1}{2}$ inch . . . . .	\$8.00
" 1493. " 0. Extra Dies, Right or Left . . . . . Each.	1.00
" 1494. " 00. Threads $\frac{1}{8}$ , $\frac{3}{8}$ and 1 inch . . . . .	9.00
" 1494. " 00. Extra Dies, Right or Left . . . . . Each.	1.50

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

ARMSTRONG STOCK AND DIES, No. 1.

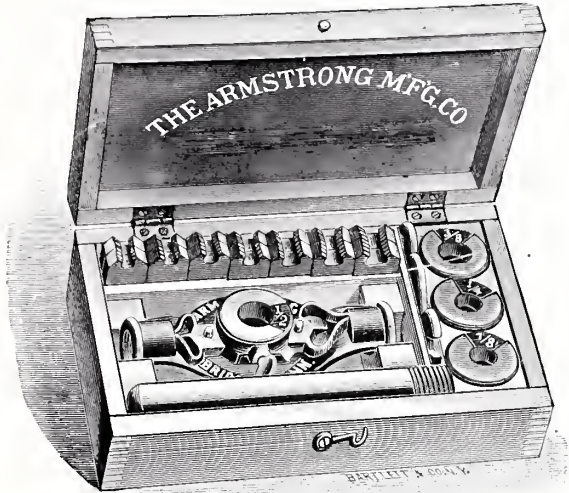


Fig. 1495.

ARMSTRONG STOCK AND DIES, No. 3.

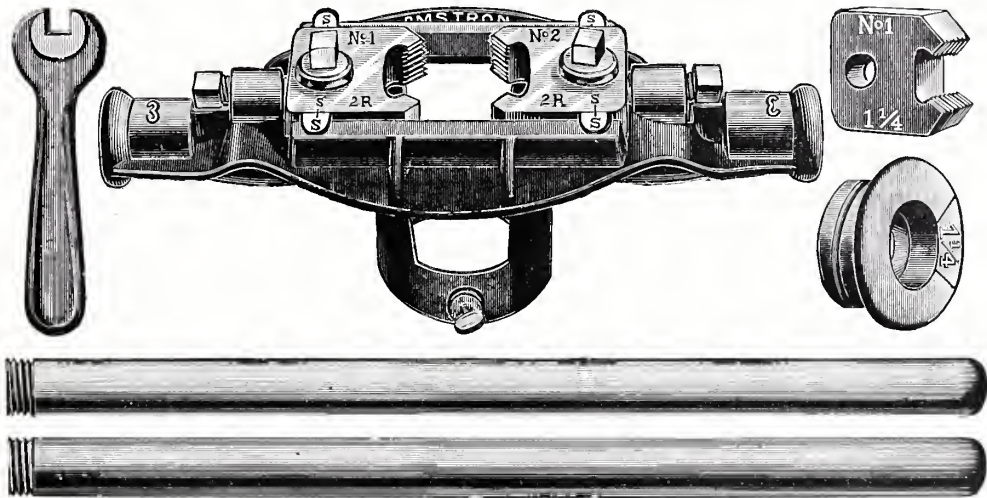


Fig. 1496.

NUMBER . . . . .	1	2	2½	3	4	6	7
Threads . . . . .	½ to 2	½ to 1	½ to 1½	1 to 2	1½ to 2	2½ and 3	2½ to 4
Complete . . . . .	9.00	12.00	12.00	24.00	18.00	40.00	60.00
Stock only . . . . .	3.00	3.50	4.50	7.00	7.50	25.00	30.00
Extra Dies . . . . .	1.20	1.50	3.00	4.00	3.00	15.00	16.00
“ Bushings . . . . .	.20	.25	.40	.50	.50	1.00	1.50
“ Wrenches . . . . .	.25	.25	.25	.50	. . .	.50	.75

No. 4 Stock is a Sectional Stock. Nos. 2½, 6 and 7 Stocks are fitted with Double Ended Dies. Nos. 1 and 2 Stocks are packed in cases, as shown by Fig. 1495. Nos. 6 and 7 have Four Arms.



# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

ARMSTRONG STOCK FOR BRASS PIPE.

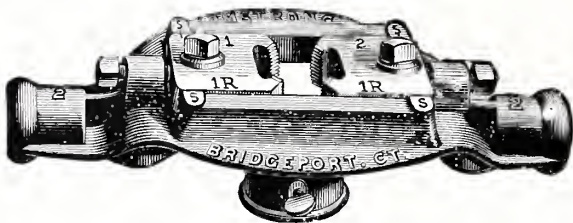


Fig. 1497.

Fig. 1497.	No. 2 Stock, 5 Brass Dies,	$\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1 and $1\frac{1}{4}$ inch	Each.	\$15.00
" 1497.	No. 2 "	5 " " and Taps, $\frac{5}{8}$ , $\frac{3}{4}$ , $\frac{7}{8}$ , 1 and $1\frac{1}{4}$ inch		26.25

PRICE-LIST OF PARTS.

No. 2 Stock	Each.	\$3.50
" 2 Brass Dies, Right or Left, $\frac{5}{8}$ to $1\frac{1}{4}$ inch	"	2.50
" 2 Bushings—Pipe, Bolt or Brass	"	.25
" 2 Wrench	"	.25
" 2 Collar Screw	"	.12
" 2 Set Screw	"	.10
" 2 Thumb Screw	"	.10

## ARMSTRONG'S BRASS OR FINE THREAD TAPS, RIGHT OR LEFT-HAND.

DIAMETER . . . . .	INCHES,	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{4}$
No. of Threads to inch . . . . .		20	20	18	18	18
Price . . . . .		\$1.25	1.75	2.25	2.75	3.25

ENTERPRISE RATCHET STOCK.



Fig. 1498.

Fig. 1498.	No. 1, $\frac{1}{4}$ to $1\frac{1}{2}$ -inch Pipe	Each.	\$10.00
" 1498.	No. 2, $\frac{1}{2}$ to 2 " "		15.00
Dies for No. 1 . . . . .		Each.	3.00
" " No. 2 . . . . .		"	3.50

These Stocks are equal to any for bench work, and for portable use, especially by pump men, they have no competitors. They are also the cheapest tools in the market.

# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

## JARECKI'S PATENT SCREW PLATE AND CUTTER.

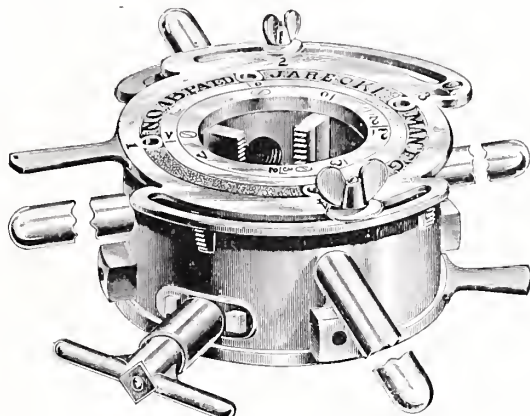


Fig. 1499.

No. 1.	Cuts and Threads, $\frac{1}{8}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ .									\$14.00
" 2.	"	"	$\frac{1}{2}$ , $\frac{3}{4}$ , 1, $1\frac{1}{4}$ .							16.00
" 3.	"	"	1, $1\frac{1}{4}$ , $1\frac{1}{2}$ , 2.							20.00
" $3\frac{1}{2}$ .	"	"	$\frac{1}{2}$ , $\frac{3}{4}$ , 1, $1\frac{1}{4}$ , $1\frac{1}{2}$ , 2.							22.50
" 4A.	"	"	$1\frac{1}{2}$ , 2, $2\frac{1}{2}$ , 3.							35.00
" 4B.	"	"	$2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4.							50.00
" 5.	"	"	$4\frac{1}{2}$ , 5, 6.							75.00

NUMBER	1	2	3	$3\frac{1}{2}$	4A	4B	5
Dies, per set, right or left-hand	2.00	2.00	2.00	2 Sets. 4.00	3.00	3.00	6.00
Knives	.40	.40	.40	.40	.50	.50	1.00
" complete, with Knife Case and Feed Handle	1.00	1.00	1.00	1.00	1.50	1.50	3.00
Stud Bolts to fasten Top Plates.	.35	.35	.35	.35	.50	.50	.75
Screws, all kinds.	.05	.05	.05	.05	.10	.10	.15
Feed Handle for Knife	.25	.25	.25	.25	.30	.30	.40
Thumb Nuts and Hexagon Nuts	.15	.15	.15	.15	.20	.20	.25
Handles, each.	.50	.50	.50	.50	.75	.75	1.00
Cam Plates and Scroll Plates	3.00	3.00	3.00	3.00	4.25	4.25	8.50
Recutting Dies, per set	.95	.95	.95	1.90	1.50	1.50	3.00

We can furnish extra Dies for Line Pipe and Casing Threads, at an additional cost.

The Nos. 1, 2, 3 and  $3\frac{1}{2}$  have two handles; Nos. 4A and 4B have four handles; No. 5 has five handles.

## ADJUSTABLE DUPLEX DIE STOCK.

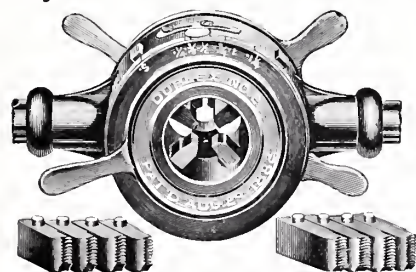


Fig. 1500.

No.	FOR THREADING.	Without Cut-Off.	With Cut-Off.	Extra Dies.
1	$\frac{1}{8}$ , $\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ pipe	\$13.00	16.00	1.50
2	$\frac{1}{4}$ , $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{3}{4}$ , 1, $1\frac{1}{4}$ pipe	17.00	20.00	1.75
3	1, $1\frac{1}{4}$ , $1\frac{1}{2}$ , 2 pipe	22.00	25.00	2.00
$3\frac{1}{2}$	$\frac{1}{2}$ , $\frac{3}{4}$ , 1, $1\frac{1}{4}$ , $1\frac{1}{2}$ , 2 pipe	25.00	28.00	2.00
4	$1\frac{1}{2}$ , 2, $2\frac{1}{2}$ , 3 pipe	40.00	45.00	3.50
5	$2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4 pipe	55.00	60.00	4.00

NUMBER	1	2	3	$3\frac{1}{2}$	4	5
Extra Locknuts	\$0.75	1.00	1.25	1.25	1.50	1.75
" Cam Plates.	1.25	1.50	2.00	2.00	2.50	3.00

PLUMBERS', STEAM AND GASFITTERS'  
TOOLS — CONTINUED.

STANWOOD'S CUTTER.

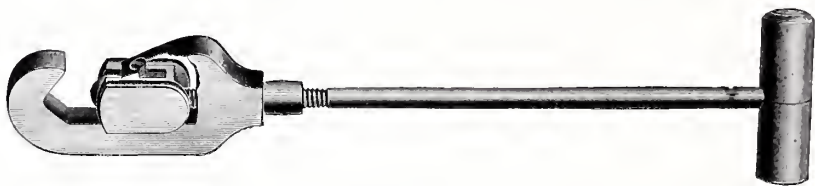


Fig. 1501.

NUMBER . . . . .	1	2	3
Cuts Pipes from . . . . .	$\frac{1}{4}$ to $\frac{3}{4}$	$\frac{3}{4}$ to 2	2 to 3
Complete . . . . .	\$1.50	2.25	7.00
Cutter Blocks and Wheels . . . . .	.45	.60	1.25
“ Wheels only . . . . .	.12	.18	.25
Pins . . . . .	.05	.05	.08

SAUNDERS' THREE-WHEEL CUTTER.



Fig. 1502.

SAUNDERS' ONE-WHEEL AND ROLLER CUTTER.



Fig. 1503.

NUMBER . . . . .	1	2	3	4
Cuts Pipe from . . . . .	$\frac{1}{4}$ to 1	1 to 2	2 to 3	$2\frac{1}{2}$ to 4
Complete . . . . .	\$3.00	4.50	11.00	18.00
Cutter Blocks and Wheels . . . . .	1.25	1.75	2.75	3.50
Cutter Wheels only . . . . .	.24	.32	.60	.60
Rollers only . . . . .	.24	.32	.50	.50
Extra Pins . . . . .	.10	.10	.15	.15

PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

GLEASON'S SCREWING STOCK FOR BRASS PIPE.



Fig. 1504.

Threads,  $\frac{3}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ ,  $\frac{1}{2}$  and  $\frac{7}{8}$  inch . . . . . Each. \$8.00

WALWORTH'S CUTTER.



Fig. 1505.

NUMBER . . . . .	1	2	3
Each . . . . .	\$1.50	2.25	7.00
Cutter Wheels . . . . .	.12	.18	.25
Cutter Blocks and Wheels . . . . .	.60	.90	1.50

WALWORTH'S THREE-WHEEL CUTTER.

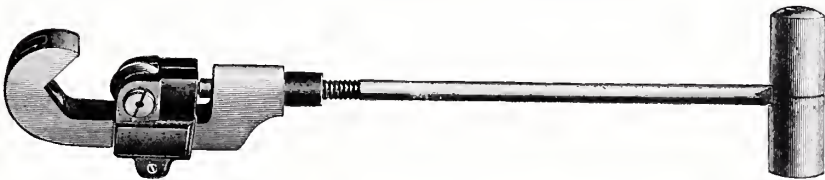


Fig. 1506.

NUMBER . . . . .	1	2	3
Cuts Pipe from . . . . .	$\frac{1}{8}$ to 1	$\frac{3}{4}$ to 2	2 to 3
Each . . . . .	\$3.00	4.00	8.00
Extra Small Wheels . . . . .	.11	.12	.18
“ Large “ . . . . .	.16	.18	.25
“ Blocks . . . . .	.60	.90	1.50



PLUMBERS', STEAM AND GASFITTERS' TOOLS — CONTINUED.

THE PEERLESS CUTTER.

BURR REMOVING WHEEL.

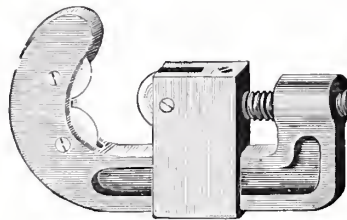


Fig. 1507.

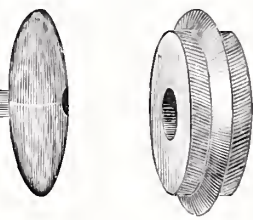


Fig. 1508.

NUMBER . . . . .	1	2	3	4	6
Cuts Pipe from . . . . .	$\frac{1}{4}$ to 1	1 to 2	2 to 3	2 to 4	3 to 6
Each . . . . .	\$4.50	6.00	10.00	25.00	50.00
Extra Plain Wheels . . . . .	.25	.30	.40	.50	.75
“ Burr “ . . . . .	.60	.75	.90	1.05	1.25

BARNES' CUTTER.

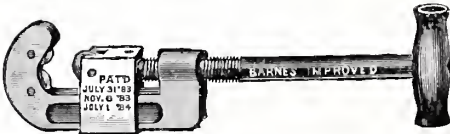


Fig. 1509.

NUMBER . . . . .	1	2	3	4	5	6	7
Cuts Pipe from . . . . .	$\frac{1}{8}$ to 1	$\frac{1}{2}$ to 2	$1\frac{1}{2}$ to 3	3 to 4	4 to 6	6 to 8	9 to 12
Each . . . . .	\$4.50	6.00	10.00	20.00	30.00	40.00	50.00
Extra Wheels . . . . . Each.	.25	.30	.40	.50	.75	.75	.75
Wheel Pins . . . . . “	.10	.10	.10	.10	.20	.20	.20

MILLER'S RATCHET CUTTER.

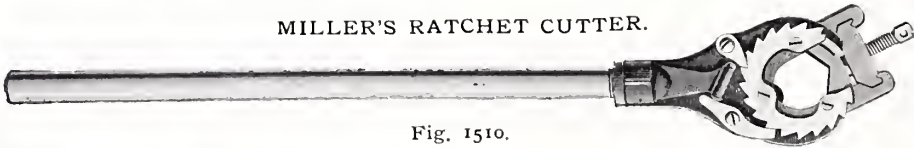


Fig. 1510.

NUMBER . . . . .	0	1	$1\frac{1}{2}$	2	3
Cuts Pipe from . . . . .	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{4}$ to 1	1 to $1\frac{1}{2}$	$1\frac{1}{4}$ to 2	$2\frac{1}{2}$ to 3
Each . . . . .	\$6.75	8.50	10.00	11.00	16.00
Extra Wheels . . . . .	.12	.18	.18	.25	.40

# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

## COMSTOCK CUTTER.



Fig. 1511.

Fig. 1511. No. 1, Cuts from $\frac{1}{8}$ to $1\frac{1}{4}$ inches . . . . .	\$4.50
“ 1511. No. 2, “ $1$ to $2\frac{1}{2}$ “ . . . . .	6.00
“ 1511. No. 3, “ $1\frac{1}{2}$ to $4$ “ . . . . .	10.00
No. 1, Cutter Wheel, Extra . . . . .	.25
No. 2, “ “ “ . . . . .	.35
No. 3, “ “ “ . . . . .	.50

The Comstock Pipe Cutter has an Abrading, or Scraping Attachment, for removing the burr and scale from the end of the pipe while cutting.

## ARMSTRONG CUTTER.

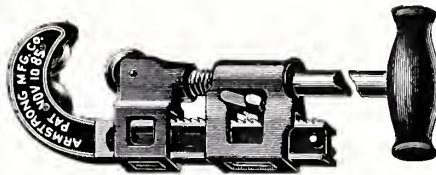


Fig. 1512.

Fig. 1512. No. 1, Cuts from $\frac{1}{8}$ to $1\frac{1}{4}$ inches . . . . .	\$4.50
“ 1512. No. 2, “ $\frac{1}{2}$ to $2\frac{1}{2}$ “ . . . . .	6.00
“ 1512. No. 3, “ $1\frac{1}{2}$ to $4$ “ . . . . .	20.00
No. 1, Cutter Wheels or Rollers . . . . .	Each. .25
No. 2, “ “ “ “ . . . . .	“ .30
No. 3, “ “ “ “ . . . . .	“ .50

## RATCHET BRACE.

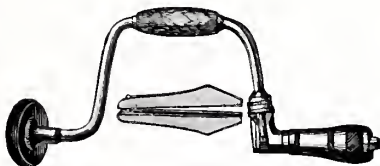


Fig. 1513.

## BREAST DRILL.

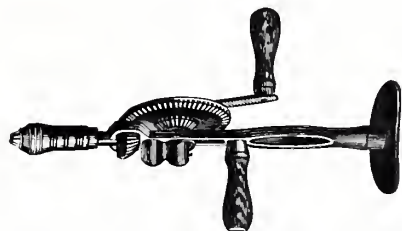


Fig. 1514.

SWEEP . . . . .	INCHES.	8	10	12	14
Fig. 1513 . . . . .	Per dozen.	\$33.00	36.00	39.00	42.00
Fig. 1514 . . . . .	Per dozen.				\$30.00

PLUMBERS', STEAM AND GASFITTERS'  
TOOLS — CONTINUED.

THE WAKEFIELD WRENCH.

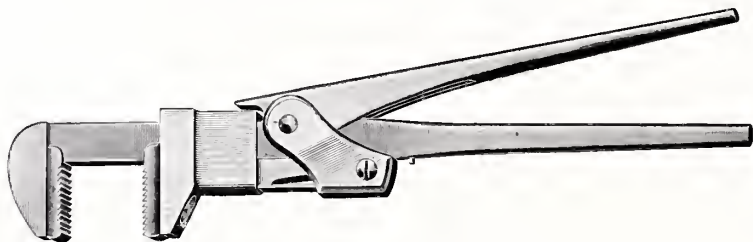


Fig. 1515.

NUMBER . . . . .	1	2	3	4	5
Length . . . . . Inches.	9	11	15	19	25
Opens . . . . .	1½	1¾	2¼	2½	3¼
Fig. 1515 . . . . . Each.	\$2.50	3.00	4.00	5.00	7.50
Nickel Plating, extra . . . . .	.40	.50	.70	1.00	1.30

TOOTHED PLATE.



Fig. 1516.

NUMBER . . . . .	1	2	3	4	5
Fig. 1516 . . . . .	\$0.25	.35	.45	.55	.65
" 1517 . . . . .	.18	.25	.35	.45	.55

In ordering, state the No. of Wrench and whether to be used on Sliding Jaw or Head.

PLAIN PLATE  
FOR FINISHED NUTS.



Fig. 1517.

WAKEFIELD WRENCH CLAMP.

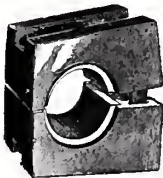


Fig. 1518.

CLAMP AS USED IN THE WAKEFIELD  
WRENCH.

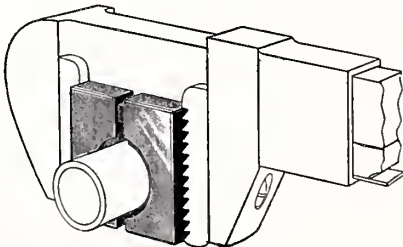


Fig. 1519.

½-inch Clamp holds ½-inch Pipe . . . . .	\$2.00	½-inch Clamp holds ½-inch Pipe . . . . .	\$2.00
¾ " " " ¾ " " . . . . .	2.00	¾ " " " ¾ " " . . . . .	2.00
1 " " " 1 " " . . . . .	2.00	1 " " " 1 " " . . . . .	2.50

This Clamp is designed to be used on Brass, Nickel Plated and Finished Work, and is provided with a Composition Lining that will not deface the finest work.

WAKEFIELD  
VISE CLAMP.



Fig. 1520.

No. 1.	Holds ½ and ¾-inch Pipe . . . . .	\$4.00
" 2.	" ¾ " ½ " " . . . . .	4.50
" 2A.	" 1 " ¾ " " . . . . .	4.75
" 3.	" ¾ " 1 " " . . . . .	5.00
" 4.	" 1½ " 1½ " " . . . . .	5.50

PLUMBERS', STEAM AND GASFITTERS' TOOLS — CONTINUED.

TRIMO WRENCH.

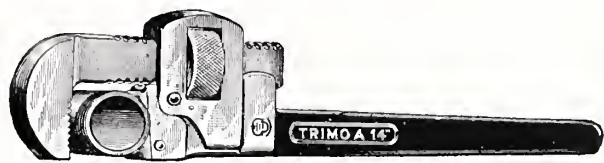


Fig. 1521.

SIZE . . INCHES.	6	8	10	14	18	24	36	48
Takes Pipe . . .	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to 1	$\frac{1}{8}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{2}$ to $3\frac{1}{2}$	1 to 5
Price . . . . .	\$2.00	2 00	2 25	3 00	4 00	6 00	12 00	18 00
Inserted Jaw . .	.25	.25	.33	.50	.55	.65	1.00	1.25
Saddle . . . . .	.20	.20	.27	.35	.42	.50	.65	.80
Rocker . . . . .	.20	.20	.27	.35	.42	.50	.65	.80

FRANKLIN'S.



Fig. 1522.

SIZE . . INCHES.	6	8	10	14	18	24	36	48
Takes Pipe . . .	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to 1	$\frac{1}{8}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{1}{2}$ to $3\frac{1}{2}$	1 to 5
Price . . . . .	\$2.00	2 00	2 25	3 00	4 00	6 00	12 00	18 00
Extra Jaw . . .	.67	.67	.75	1.00	1.33	2.00	4.00	6.00
“ Nut . . . . .	.20	.20	.27	.25	.42	.50	.65	.80

TRIMO COMBINATION WRENCH.

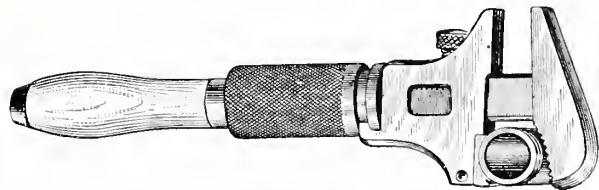


Fig. 1523.

Fig. 1523.	No. 1, 10-inch, takes from $\frac{1}{8}$ inch to 1 inch Pipe . . . . .	Per dozen	\$28.50
“ 1523.	“ 2, 12 “ “ $\frac{1}{8}$ “ $1\frac{1}{2}$ “ . . . . .	“	35.00
“ 1523.	“ 3, 15 “ “ $\frac{1}{8}$ “ 2 “ . . . . .	“	40.00



PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

STILLSON WRENCH, 6 TO 18 INCHES.

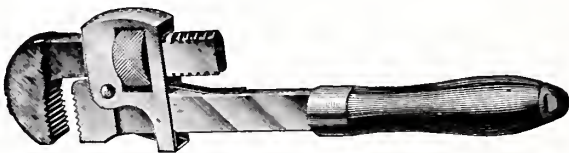


Fig. 1524.

LENGTH WHEN OPEN . . . . . INCHES.	6	8	10	14	18
Fig. 1524. Grips . . . . .	$\frac{1}{8}$ Wire to $\frac{1}{2}$ Pipe.	$\frac{1}{8}$ Wire to $\frac{3}{4}$ Pipe.	$\frac{1}{8}$ Wire to 1 Pipe.	$\frac{1}{8}$ Wire to $1\frac{1}{2}$ Pipe.	$\frac{1}{8}$ Wire to 2 Pipe.
" 1524 . . . . . Each.	\$2.00	2.00	2.25	3.00	4.00

6-inch Wrench with Screw Driver Attachment on end of Handle. Finished, each, \$2.37; Nickel Plated, \$2.75.

STILLSON WRENCH, 24 TO 48 INCHES.



Fig. 1525.

LENGTH WHEN OPEN . . . . . INCHES.	24	36	48
Fig. 1525. Grips . . . . .	$\frac{1}{8}$ Wire to $2\frac{1}{2}$ Pipe.	$\frac{1}{8}$ Pipe to $3\frac{1}{2}$ Pipe.	1 Pipe to 5 Pipe.
" 1525 . . . . . Each.	\$6.00	12.00	18.00

REPAIRS FOR STILLSON WRENCH.

JAW.



Fig. 1526.

HANDLE.



Fig. 1527.

NUT.



Fig. 1528.

FRAME.



Fig. 1529.

SIZE . . . . . INCHES.	6	8	10	14	18	24	36	48
Fig. 1526. Jaws . . . . . Each.	\$0.67	.67	.75	1.00	1.33	2.00	4.00	6.00
" 1527. Handles . . . . .	.15	.15	.20	.25	.30	.50	.65	.80
" 1528. Nuts . . . . .	.20	.20	.27	.35	.42	.65	.75	1.00
" 1529. Frames . . . . .	.25	.25	.33	.45	.55	.65	.75	1.00

PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

ASHLEY WRENCH.



Fig. 1530.

LENGTH WHEN OPEN . . . IN.	6	8	10	14	18	24	36	48
Grips . . . . .	$\frac{1}{8}$ Wire to $\frac{1}{8}$ Pipe.	$\frac{1}{8}$ Wire to $\frac{3}{8}$ Pipe.	$\frac{1}{8}$ Wire to 1 Pipe.	$\frac{1}{4}$ Wire to $1\frac{1}{2}$ Pipe.	$\frac{1}{4}$ Wire to 2 Pipe.	$\frac{1}{4}$ Wire to $2\frac{1}{2}$ Pipe.	$\frac{1}{2}$ Pipe to $3\frac{1}{2}$ Pipe.	1 Pipe to 5 Pipe.
Fig. 1530 . . . . . Each.	\$2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00
Extra Jaws . . . . .	.67	.67	.75	1.00	1.33	2.00	4.00	6.00
“ Handles . . . . .	.15	.15	.20	.25	.30	. . .	. . .	. . .
“ Nuts . . . . .	.20	.20	.27	.35	.42	.50	.65	.80

ATWATER'S PATENT PIPE WRENCH JAW.

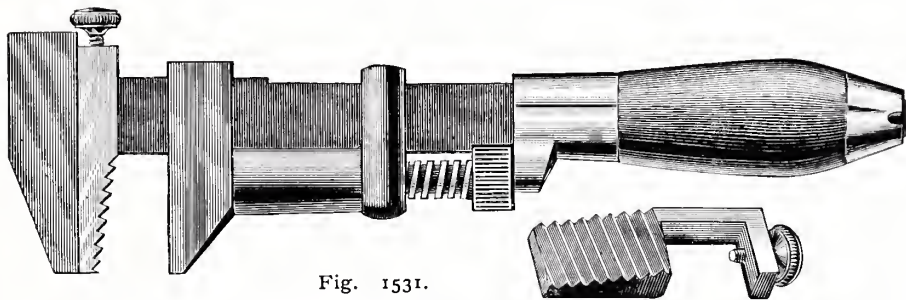


Fig. 1531.

NUMBER . . . . .	1	2	3
Takes from . . . . .	$\frac{1}{8}$ -inch Wire to $\frac{3}{4}$ -inch Pipe.	$\frac{1}{4}$ -inch Wire to $2\frac{1}{2}$ -inch Pipe.	$\frac{1}{2}$ -inch Wire to 3-inch Pipe.
Will fit Monkey Wrench . . . . .	6 and 8-inch.	10, 12, 15, 18-in.	15, 18, 21-inch.
Fig. 1531 . . . . .	\$0.75	1.00	1.50

Each size put up for the trade one dozen in a box. It will grip and hold any round or irregular object such as steam or gas pipe, a six or eight-sided bolt head that has had its corners rounded off, etc., etc.

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

BOYNTON'S ADJUSTABLE ALLIGATOR WRENCH.



Fig. 1532.

NUMBER . . . . .	7	9	13	15
Size Pipe . . . . .	$\frac{1}{4}$ to $\frac{3}{8}$	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to $1\frac{1}{4}$
Fig. 1532 . . . . .	\$1.50	1.75	2.50	3.00

COE'S MONKEY WRENCH.



Fig. 1533.

SIZE . . . . . INCHES.	6	8	10	12	15	18	21
Fig. 1533. Black . . . . . Each.	\$0.75	.85	1.00	1.20	2.00	2.50	3.00
" 1533. Bright . . . . . "	.85	1.00	1.20	1.40	2.25	2.75	3.25

ALLIGATOR WRENCH.



Fig. 1534.

NUMBER . . . . .	1	2	3	4	5
Length . . . . . Inches.	5 $\frac{3}{4}$	10	16	22	27
Takes Pipe . . . . .	$\frac{1}{4}$ to $\frac{3}{8}$	$\frac{3}{8}$ to $\frac{1}{2}$	$\frac{1}{2}$ to $1\frac{1}{4}$	$1\frac{1}{4}$ to 2	2 to 3
" Iron . . . . .	$\frac{1}{4}$ to $\frac{3}{8}$	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to $1\frac{3}{8}$	$1\frac{1}{2}$ to $2\frac{1}{2}$	$2\frac{1}{4}$ to $3\frac{1}{2}$
Fig. 1534 . . . . . Each.	\$0.33	1.00	2.00	3.00	4.50

# PLUMBERS', STEAM AND GASFITTERS' TOOLS — CONTINUED.

## COMMON PIPE TONGS.



Fig. 1535.

SIZE OF PIPE . . . . .	INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$
Fig. 1535. . . . .	Each.	\$1.00	1.00	1.25	1.50	1.75	2.00	2.40	3.00	3.75	4.75	5.50	6.50

## COIL TONGS.

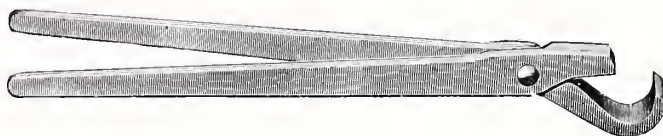


Fig. 1536.

SIZE OF PIPE . . . . .	INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 1536. . . . .	Each.	\$1.75	2.00	2.40	3.00	3.75

## BROWN'S ADJUSTABLE PIPE TONGS.

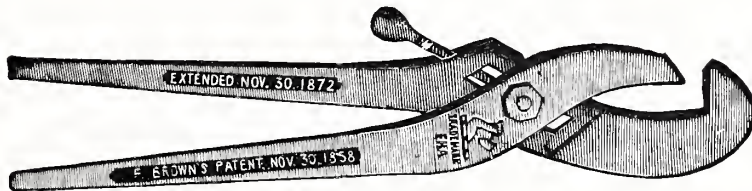


Fig. 1537.

NUMBER . . . . .	1	$1\frac{1}{2}$	2	3	4	5	6
Takes Pipe . . . . .	$\frac{1}{2}$ to $\frac{3}{4}$	$\frac{3}{4}$ to 1	$\frac{1}{2}$ to $1\frac{1}{4}$	1 to 2	$1\frac{1}{2}$ to 3	$2\frac{1}{2}$ to 4	3 to 5
Fig. 1537. Each	\$1.30	1.65	2.00	3.00	6.00	11.00	25.00

## ROBBINS' PATENT CHAIN TONGS.



Fig. 1538.

	No.	Length of Lever.	Size of Chain.	Weight.	Size of Pipe.	Price.
Fig. 1538.	2	27 inches.	5-16 inch.	7 lbs.	1 to 2 inch.	\$5.50
" 1538.	3	3 feet.	5-16 "	12 "	$1\frac{1}{4}$ to 4 "	6.25
" 1538.	4	4 "	$\frac{3}{8}$ "	24 "	2 to 6 "	9.00
" 1538.	5	5 "	$\frac{1}{2}$ "	33 "	$2\frac{1}{2}$ to 8 "	12.50
" 1538.	6	6 "	$\frac{5}{8}$ "	50 "	4 to 10 "	16.00
" 1538.	7	7 "	$\frac{3}{4}$ "	125 "	4 to 16 "	30.00



PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

BROCK'S PATENT CHAIN TONGS.



Fig. 1539.

NUMBER. . . . .	0	1	2	3	4	5
Price. . . . .	\$2.50	3.50	5.50	7.50	11.00	18.00
Capacity. . . . . Inches.	$\frac{1}{8}$ to $\frac{3}{4}$	$\frac{1}{8}$ to $1\frac{1}{2}$	$\frac{1}{4}$ to $2\frac{1}{2}$	$\frac{3}{4}$ to 4	$1\frac{1}{2}$ to 8	2 to 14
Length . . . . . “	12 $\frac{1}{2}$	20	27	37	50	64
Weight . . . . . Lbs.	1 $\frac{1}{4}$	4 $\frac{1}{4}$	8	15	28	47
Extra Chains . . . . .	\$0.75	1.00	1.50	2.50	4.00	6.00
Extra Jaws . . . . .	1.00	1.75	2.75	4.00	5.50	7.00

TRIMO CHAIN TONGS.



Fig. 1540.

NUMBER . . . . .	1	2	3	4	5
Price . . . . .	\$3.50	5.50	7.50	11.00	18.00
Length . . . . . Inches.	20	27	37	50	64
Size of Pipe . . . . . “	1 to 2 $\frac{1}{2}$	1 to 3 $\frac{1}{2}$	1 $\frac{1}{4}$ to 6	1 $\frac{1}{2}$ to 8	2 to 14
Extra Chains . . . . .	\$1.00	1.50	2.50	4.00	6.00
Extra Jaws. . . . .	.80	1.25	2.00	2.50	3.00

# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

No. 1 NIPPLE HOLDER.

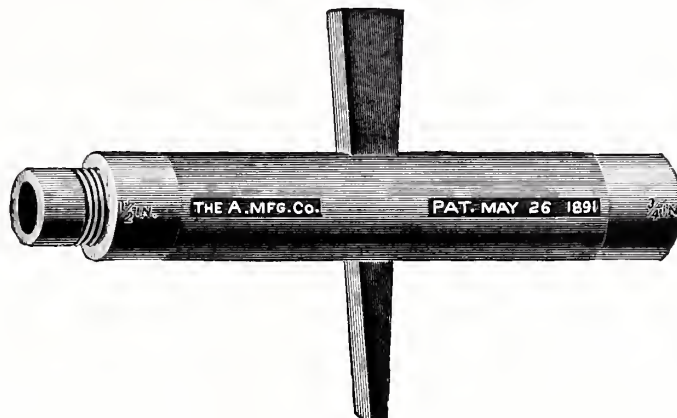


Fig. 1541.

As will be seen in cut, this Holder is double ended and holds two sizes of Nipples, as follows:

For No. 2, Stocks $\frac{3}{8}$ and $\frac{1}{2}$ inch . Each.	\$3.00	For No. 2 $\frac{1}{2}$ , Stocks 1 and $1\frac{1}{4}$ inch . Each.	\$3.00
" No. 2, " $\frac{3}{8}$ " 1 " . "	3.00	" No. 3, " 1 " $1\frac{1}{4}$ " . "	3.50
" No. 2 $\frac{1}{2}$ , " $\frac{1}{2}$ " $\frac{3}{4}$ " . "	3.00	" No. 3, " $1\frac{1}{2}$ " 2 " . "	3.50
Per Set, from $\frac{3}{8}$ to 2-inch inclusive . . . . .		\$10.00	

These Holders can also be used in Machines; but we also make No. 2 Nipple Holder especially for Machine purposes.

## NIPPLE HOLDERS.

SIZE . IN.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6
Price . . .	\$2.75	2.75	3.00	3.25	3.50	3.75	4.25	4.25	5.00	5.00	6.00	6.00	7.00	7.00	9.00

CENTENNIAL PIPE VISE.

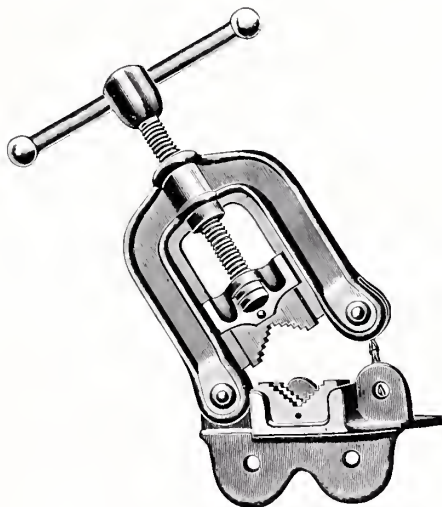


Fig. 1542.

The Frames are of Malleable Iron, with Solid Steel Jaws, carefully hardened and tempered.

Fig. 1542.	No. 3.	$\frac{1}{2}$ to 2-inch Pipe . . . . .	\$10.00
" 1542.	" 5.	$\frac{1}{2}$ " $3\frac{1}{2}$ " . . . . .	13.00
" 1542.	" 6.	$\frac{1}{2}$ " 4 " . . . . .	20.00

"S. &amp; W." PIPE VISE.

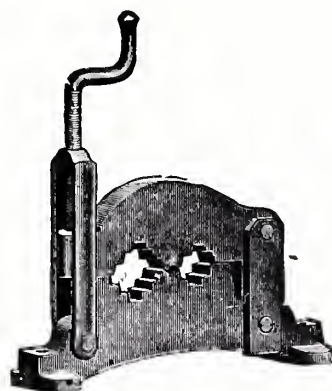


Fig. 1543.

Worth many times its cost. Holds  $\frac{3}{4}$  rod to 2-inch pipe. Price . . . . . \$3.00.

PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

SMITH COMBINATION PIPE VISE.

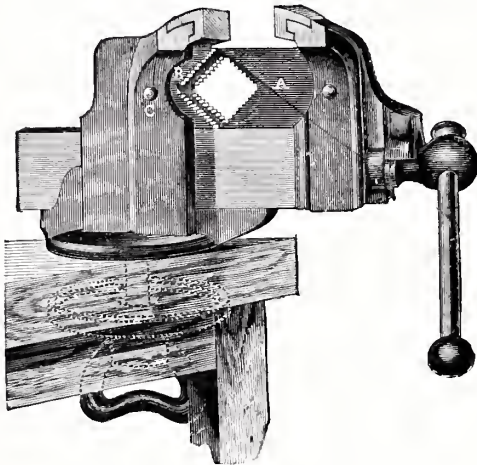


Fig. 1544.

HEAVY BENCH VISE.

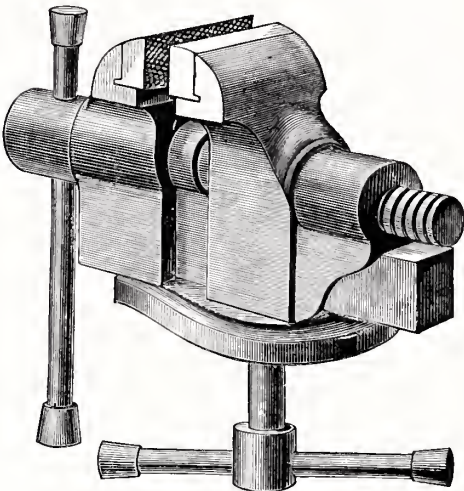


Fig. 1545.

NUMBER . . . . .	1	2
Holds Pipe . . . Inches.	$\frac{1}{4}$ to 2	$\frac{1}{4}$ to 3
Price . . . . . Each.	\$16.00	20.00
Weight . . . . . Lbs.	41	59

Holds  $\frac{1}{4}$  to 3-inch Pipe.

Price . . . . . \$18.00

VANDERMAN'S COMBINATION VISE.

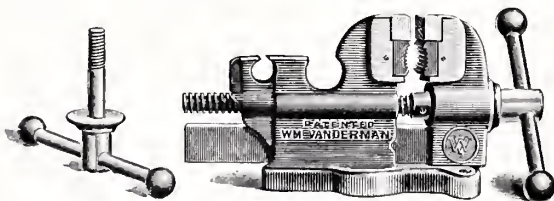


Fig. 1546.

DETACHED BRASS  
PIPE JAW.



Fig. 1547.

BRASS PIPE JAW  
IN PLACE.

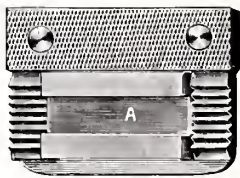


Fig. 1548.

- Fig. 1546. No. 1, Vise, complete, with Bending Bushing, and Combination Jaws for Pipe  $\frac{1}{4}$  to 7-inch; weight, 90 lbs. . . . . Each. \$20.00
- Fig. 1546. No. 2, Vise, complete, with Bending Bushing, without Combination Jaws, for Pipe  $\frac{1}{4}$  to 7-inch . . . . . Each. \$16.00

Special Jaws for holding Brass Pipe, extra; for a set of two Jaws to take Brass Pipe from  $\frac{1}{2}$  to 2 inch . . . . . \$2.00 net.

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

VANDERMAN'S VISE WITH BENDING FORM.

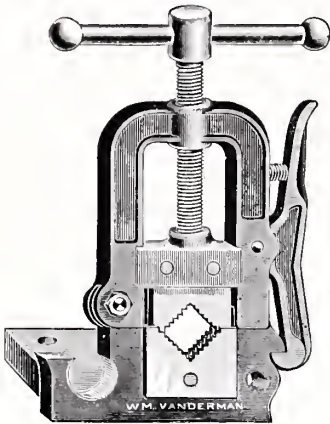


Fig. 1549.

SPECIAL JAWS FOR BRASS PIPE.

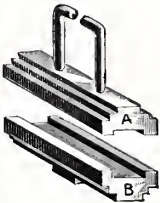


Fig. 1550.

NUMBER . . . . .	1	2	3
For Pipe . . . . .	$\frac{1}{8}$ to $1\frac{1}{2}$	$\frac{1}{8}$ to 2	$\frac{1}{8}$ to $2\frac{1}{2}$
Fig. 1549 . . . . .	Each. \$8.00	9.00	10.00

Special Jaws for Brass Pipe for either size, \$2.00 net.

PIPE TAP. PIPE REAMER. COMBINED TAP, PIPE DRILL. COUNTER BORE. REAMER, DRILL.



Fig. 1551.



Fig. 1552.



Fig. 1553.



Fig. 1554.



Fig. 1555.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Fig. 1551. Taps . . . . .	\$1.12	1.25	1.50	1.87	2.50	3.12	3.75	4.62	6.25	10.50	15.00	. . .	. . .
" 1552. Reamers . . . . .	1.12	1.25	1.50	1.87	2.50	3.12	3.75	4.62	6.25	10.50	15.00	. . .	. . .
" 1553. Tap, Reamer and Drill . . . . .	. . .	2.50	2.50	3.00	4.50	6.00	7.25	8.50	10.75	. . .	. . .	. . .	. . .
" 1554. Drills . . . . .	.75	.75	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.75	4.75	. . .	. . .
" 1555. Counter Bores . . . . .	. . .	. . .	. . .	. . .	. . .	3.50	4.00	5.00	6.00	. . .	. . .	. . .	. . .



PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

TAPS AND DIES FOR PLUMBERS' BRASS PIPE.

SIZE . . . . . INCHES.	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{2}$	1	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{2}$
Each . . . . .	\$1.75	2.00	2.25	2.75	3.75	4.75	5.50	6.25	8.00
Dies . . . . .	2.00	2.00	2.00	2.00	2.00	4.00	4.00	4.00	4.00

Dies,  $1\frac{1}{2}$  and smaller, are 2 x 2 x  $\frac{1}{2}$ . Dies,  $1\frac{1}{2}$  and larger, are 4 x 4 x  $\frac{1}{2}$ .  
Dies for No. 1, "S & W." Stock  $2\frac{1}{2}$  x  $2\frac{1}{2}$  x  $\frac{1}{2}$ , \$2.50 each.

DIE FRAME.

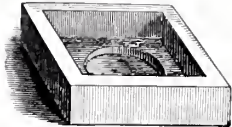


Fig. 1556.

GUIDE.




Fig. 1557.

SOLID PIPE DIE.

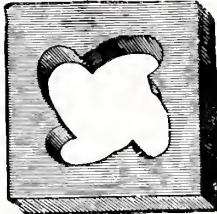


Fig. 1558.

HAYES PIPE DIE.

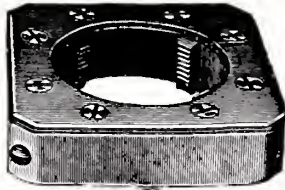


Fig. 1559.

DIE FRAMES—Fig. 1556.

OUTSIDE MEASUREMENT . . . . .	$2\frac{1}{2}$ x $2\frac{1}{2}$	3 x 3	4 x 4	5 x 5
For Solid Pipe Dies . . . . .	2 x 2	$2\frac{1}{2}$ x $2\frac{1}{2}$	3 x 3	4 x 4
Each . . . . .	\$0.30	.40	.50	.60

GUIDES—Fig. 1557.

For "S. & W." Stock, number . . . .	0	1	$1\frac{1}{2}$	$1\frac{3}{4}$	2	3
Outside Diameter . . . . . Inches.	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{5}{16}$	$1\frac{3}{8}$	$2\frac{1}{8}$	$3\frac{1}{8}$
Each . . . . .	\$0.25	.35	.45	.45	.60	1.00

SOLID PIPE DIES, RIGHT OR LEFT THREAD—Fig. 1558.

DIMENSIONS . . INCHES.	2 x 2 x $\frac{1}{2}$	$2\frac{1}{2}$ x $2\frac{1}{2}$ x $\frac{3}{4}$	3 x 3 x $\frac{3}{4}$	4 x 4 x $\frac{7}{8}$	5 x 5 x $1\frac{1}{2}$
Cuts Pipe . . . . Inches.	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}$	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{5}{8}, 1$	$\frac{1}{8}, \frac{1}{4}, \frac{3}{8}, \frac{1}{2}, \frac{5}{8}, 1, 1\frac{1}{4}, 1\frac{1}{2}$	1, $1\frac{1}{4}, 1\frac{1}{2}, 2$	$2\frac{1}{2}, 3$
Each . . . . .	\$1.50	2.00	2.50	3.50	9.00

HAYES PIPE DIE, RIGHT OR LEFT THREAD—Fig. 1559.

Size, 4 x 4 x 1 inch.				
SIZE . . . . . INCHES.	1	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Each . . . . .	\$3.50	3.50	3.50	3.50

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

No. 1 POWER MACHINE.

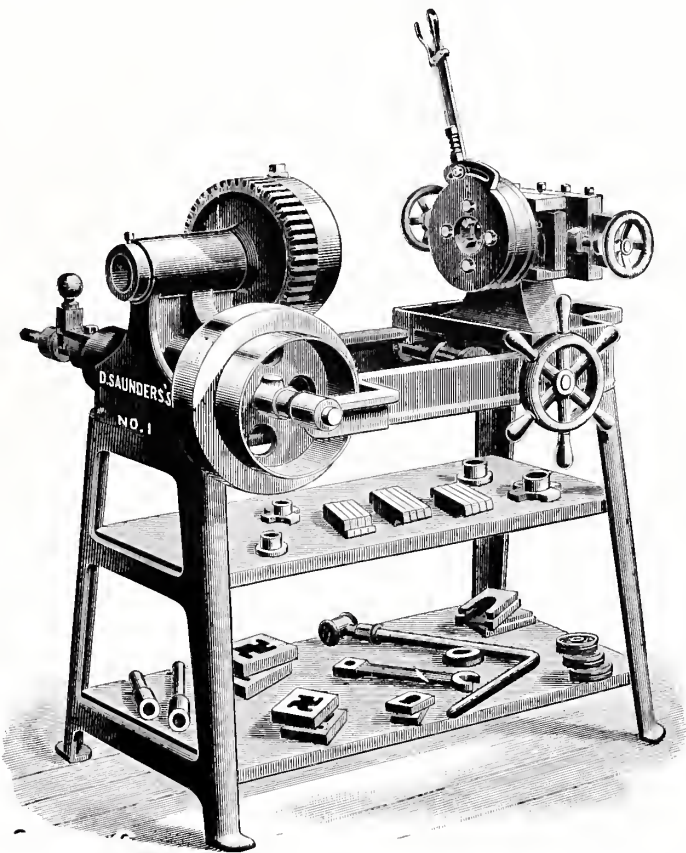


Fig. 1560.

Fig. 1560 represents a No. 1 Power Machine, arranged with the adjustable expanding die with interchangeable chasers, threading  $\frac{1}{4}$  to two inches. The cutting head is so constructed that either the expanding die or solid dies can be used. The Universal gripping chuck is of substantial construction. The carriage is moved by rack and pinion, worked by hand wheel. The cone pulley and shaft is supported by a bracket on side of the ways.

HAND MACHINE.

- Cutting and threading pipe from  $\frac{1}{4}$  inch to two inches in diameter, with universal chuck, fly wheel and solid dies, right-hand, also a set of sockets for making nipples  $\frac{1}{4}$  to two inches, complete . . . . . \$120.00
- With adjustable expanding die-head with interchangeable chasers, to thread  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$ ,  $1\frac{1}{2}$  and 2 inches, right-hand, crank wheel, set of sockets for making nipples  $\frac{1}{4}$  to 2 inches, and attachment for solid dies . . . . . 170.00

POWER AND HAND MACHINE.

- Cutting and threading pipe from  $\frac{1}{4}$  inch to 2 inches in diameter, with universal chuck, cone pulleys, countershaft and solid dies, right-hand, also a set of sockets for making nipples  $\frac{1}{4}$  to 2 inches, complete . . . . . 155.00
  - With adjustable expanding die-head with interchangeable chasers, to thread  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1,  $1\frac{1}{2}$ ,  $1\frac{1}{2}$  and 2 inches, right-hand, crank, set of sockets for making nipples  $\frac{1}{4}$  to 2 inches, countershaft, complete, and attachment for solid dies . . . . . 205.00
  - Extra chasers, right or left-hand, per set of four. . . . . 6.00
  - Solid dies, right or left-hand, extra . . . . .
- Speed of countershaft, 150 revolutions per minute. Pulleys 11 inches diameter—2 loose, each 7 inches face, one fast,  $3\frac{1}{2}$  inches face. Pulley on line shaft, 18 inches face.

PLUMBERS', STEAM AND GASFITTERS'  
TOOLS—CONTINUED.

I. X. L. HAND MACHINE.

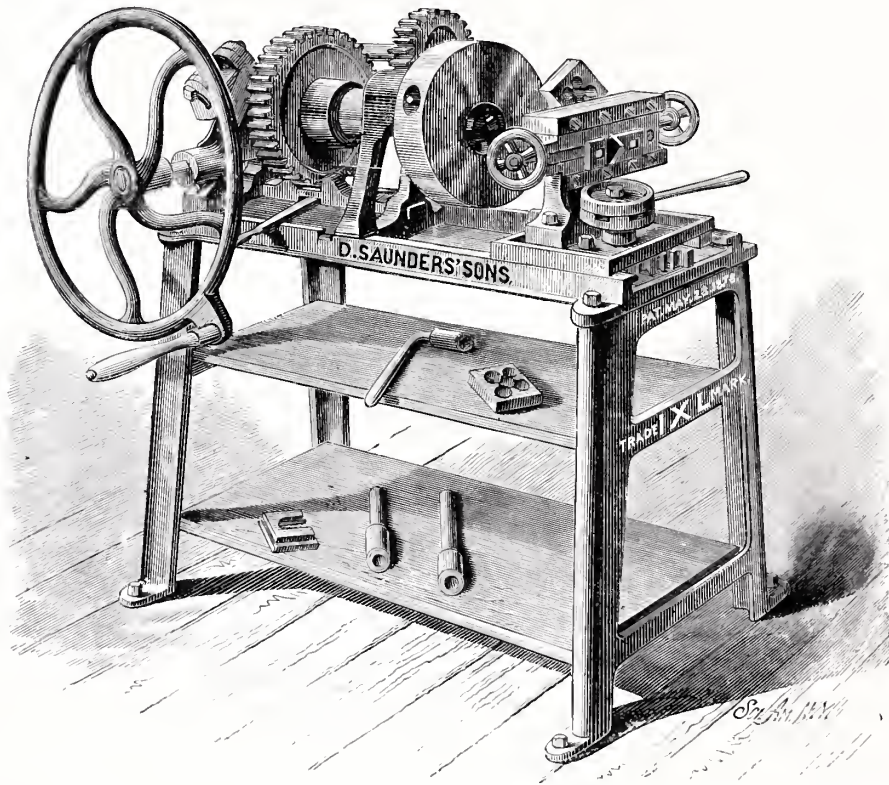


Fig. 1561.

This machine is simple in construction, easy to work, not liable to get out of order, and requires no skilled labor. The arrangement of the gearing permits the machine being adjusted to the work to be done, enabling one man to screw two-inch pipe with ease.

There are three changes of speed. The fast speed cuts  $\frac{1}{4}$ ,  $\frac{3}{8}$  and  $\frac{1}{2}$ ; the next  $\frac{3}{4}$ , 1 and  $1\frac{1}{2}$  inches; and the slowest,  $1\frac{1}{2}$  and 2 inches. The changes are made by the movement of the lever in front of the machine.

With set of right-hand solid dies $\frac{1}{4}$ to 2 inches inclusive, fly wheel, and set of sockets for making nipples $\frac{1}{4}$ to 2 inches, complete, . . . . .	\$90.00
With set of right-hand solid dies $\frac{1}{4}$ to 2 inches inclusive, fly wheel, pulleys, countershaft, and set of sockets for making nipples $\frac{1}{4}$ to 2 inches, complete, . . . . .	110.00

Speed of countershaft, 150 revolutions per minute. Pulleys, 11 inches in diameter—2 loose, each 7 inches face, one fast,  $3\frac{1}{2}$  inches face. Weight Hand Machine, 475 pounds; Power and Hand Machine, 675 pounds.



# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

No. 4 B. SHOWS THE MACHINE ARRANGED FOR BELT POWER AS WELL AS HAND.

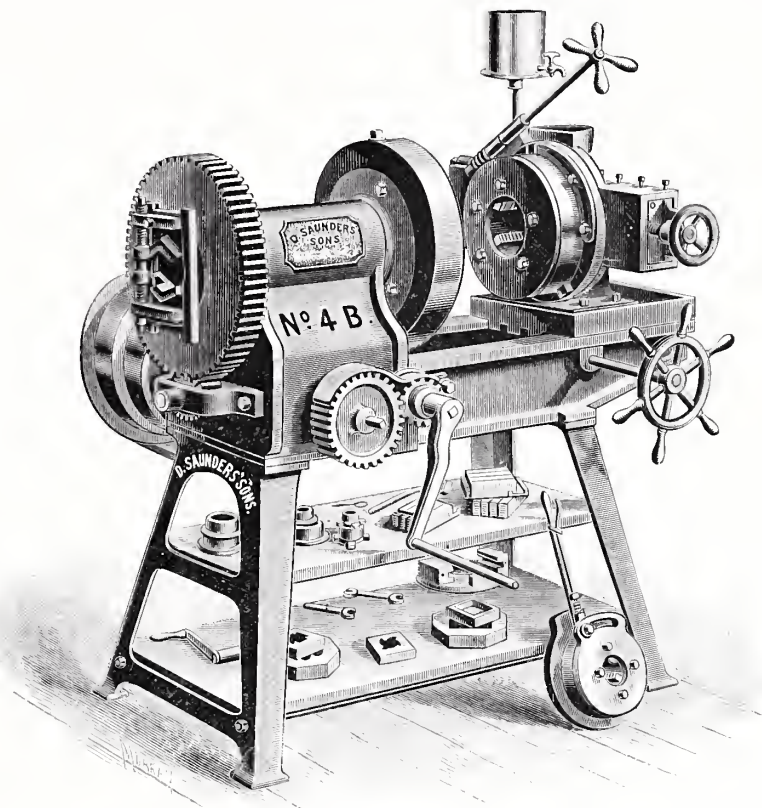


Fig. 1562.

The engraving represents a Pipe cutting and threading machine of new design, to be driven by Belt Power or by Hand.

The Power Machine has the cone pulley at right angles to the ways; though there are but two steps on the cone, four different speeds are secured by attaching the cone pulley and pinion to the shaft by a slip bolt.

The cutting-off head is arranged with a tool slide and self-centering V jaws to steady the pipe while being cut off. It is also arranged to use Adjustable Expanding or Solid Dies.

The Die shown in place on the machine is adjustable by the movement of a ring in which there are cam slots that operate to open and close the chasers for  $2\frac{1}{2}$  to 4 inches by a worm; 2 inches and smaller sizes, by a lever as shown.

Hand Machine with solid dies, right-hand,  $\frac{1}{2}$  to 4 inches, cranks, oil-can and wrenches . . . \$245.00

Power and Hand Machine with solid dies, right-hand,  $\frac{1}{2}$  to 4 inches, countershaft, crank, oil can and wrenches . . . 330.00

Hand Machine with two adjustable expanding die-heads, one threading  $\frac{1}{2}$  to 2 inches, the other  $2\frac{1}{2}$  to 4 inches, all right-hand, set of standard blank gauges to set chasers to, cranks, oil-can, wrenches and attachment for using solid dies . . . 320.00

Power and Hand Machine with two adjustable expanding die-heads, one threading  $\frac{1}{2}$  to 2 inches, the other  $2\frac{1}{2}$  to 4 inches, all right-hand, set of standard blank gauges to set chasers to, cranks, oil-can, wrenches, and attachment for using solid dies . . . 405.00

## EXTRAS.

Chasers for No. 1 Die, per set of four . . \$6.00

“ “ No. 2 “ “ five . . 14.00

Set of Socket Nipple Holders,  $\frac{1}{2}$  to 4 in. . 20.00

Pipe Rest for long lengths . . . 8.00

Cutting-off Tool . . . . . 75

## WEIGHT.

Hand Machine, complete . . . . . 1,400 lbs.

Power and Hand Machine . . . . . 1,900 “

Floor space, 4 feet 6 inches x 3 feet.

**SPEED OF COUNTERSHAFT.** 200 revolutions per minute; pulley 14 inches diameter, two loose,  $8\frac{1}{2}$  inches face each, one fast,  $4\frac{1}{2}$  inches face; pulley on line shaft, 22-inch face and diameter to drive countershaft at required speed.



# PLUMBERS', STEAM AND GASFITTERS' TOOLS — CONTINUED.

No. 3 MACHINE WITH STANDARD ADJUSTABLE EXPANDING DIE.

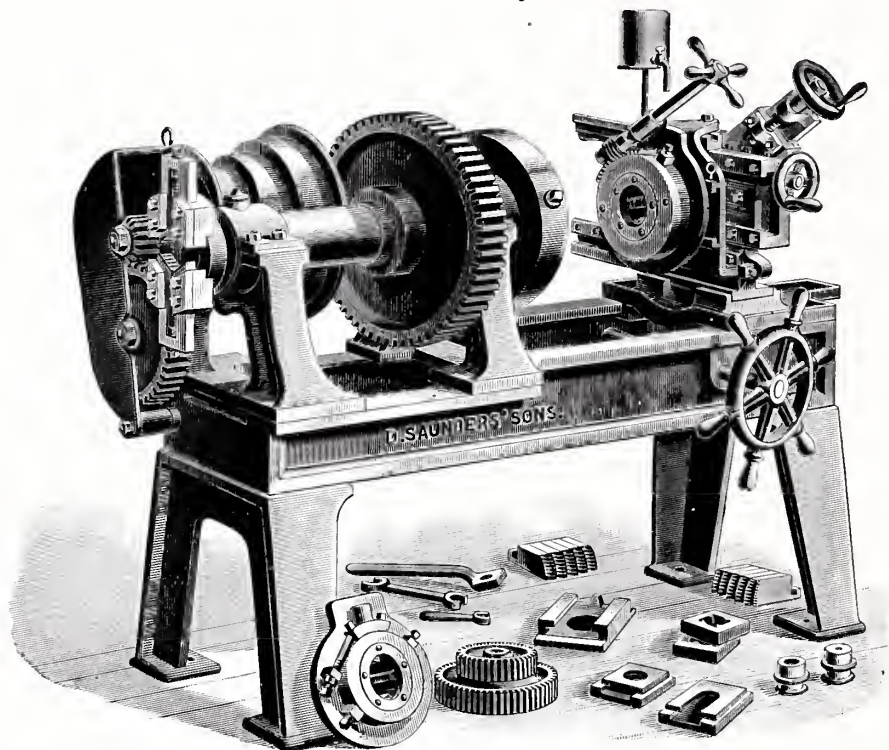


Fig. 1563.

No. 3, threads and cuts off pipe $\frac{1}{4}$ to 3 inches, with cutter dies right-hand, $2\frac{1}{2}$ and 3 inches, solid dies, $\frac{1}{4}$ to 2 inches, countershaft and bushings, complete . . . . .	\$400.00
No. 3 Machine threads and cuts off pipe $\frac{1}{4}$ to 3 inches, with patent adjustable expanding dies with interchangeable chasers, two die-heads (one threading $\frac{1}{4}$ to 2 inches, the other $2\frac{1}{2}$ and 3 inches), all right-hand. Set of Standard blank gauges to set chasers to, countershaft, oil-can, wrenches, and solid die attachment . . . . .	500.00
No. 3, with the Standard patent adjustable expanding dies, right-hand, $\frac{1}{4}$ , $\frac{3}{8}$ , 1, $1\frac{1}{2}$ , $1\frac{1}{2}$ , 2, $2\frac{1}{2}$ , and 3 inches, solid dies $\frac{1}{4}$ and $\frac{3}{8}$ , countershaft and bushings, complete . . . . .	600.00
No. 4, threads and cuts off pipe 1 to 4 inches, with cutter dies right-hand, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ and 4 inches, solid dies 1 to 2 inches, countershaft, complete . . . . .	490.00
No. 4 Machine threads and cuts off pipe 1 to 4 inches, with patent adjustable expanding dies with interchangeable chasers, two die-heads (one threading 1 to 2 inches, the other $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ and 4 inches), all right-hand. Set of Standard blank gauges to set chasers to, countershaft, oil-can, wrenches, and solid die attachment . . . . .	575.00
No. 4, with the Standard patent adjustable expanding dies right-hand, 1, $1\frac{1}{2}$ , $1\frac{1}{2}$ , 2, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ and 4 inches, countershaft, complete . . . . .	700.00
Automatic Oil Pump, extra . . . . .	20.00

In cutting and threading pipe use only the best lard oil.

## SPEEDS OF COUNTERSHAFTS.

No. 3—200 revolutions per minute; pulleys, 14 inches diameter; two loose,  $8\frac{1}{2}$  inches face each; one fast,  $4\frac{1}{2}$  inches face.

No. 4—210 revolutions per minute; pulleys, 14 inches diameter; two loose,  $8\frac{1}{2}$  inches face each; one fast,  $4\frac{1}{2}$  inches face; pulley on line shaft, 22 inches face and diameter to drive countershaft at required speed.

No. 3—Weight, with countershaft and dies, 2,400 lbs.

No. 4—Weight, with countershaft and dies, 3,200 lbs.

When these machines—Nos. 3 and 4—are made to work by hand as well as power, extra cost, \$40.00. Floor space, 6 feet 6 inches by 3 feet.

# PLUMBERS', STEAM AND GASFITTERS' TOOLS — CONTINUED.

No. 6 MACHINE.

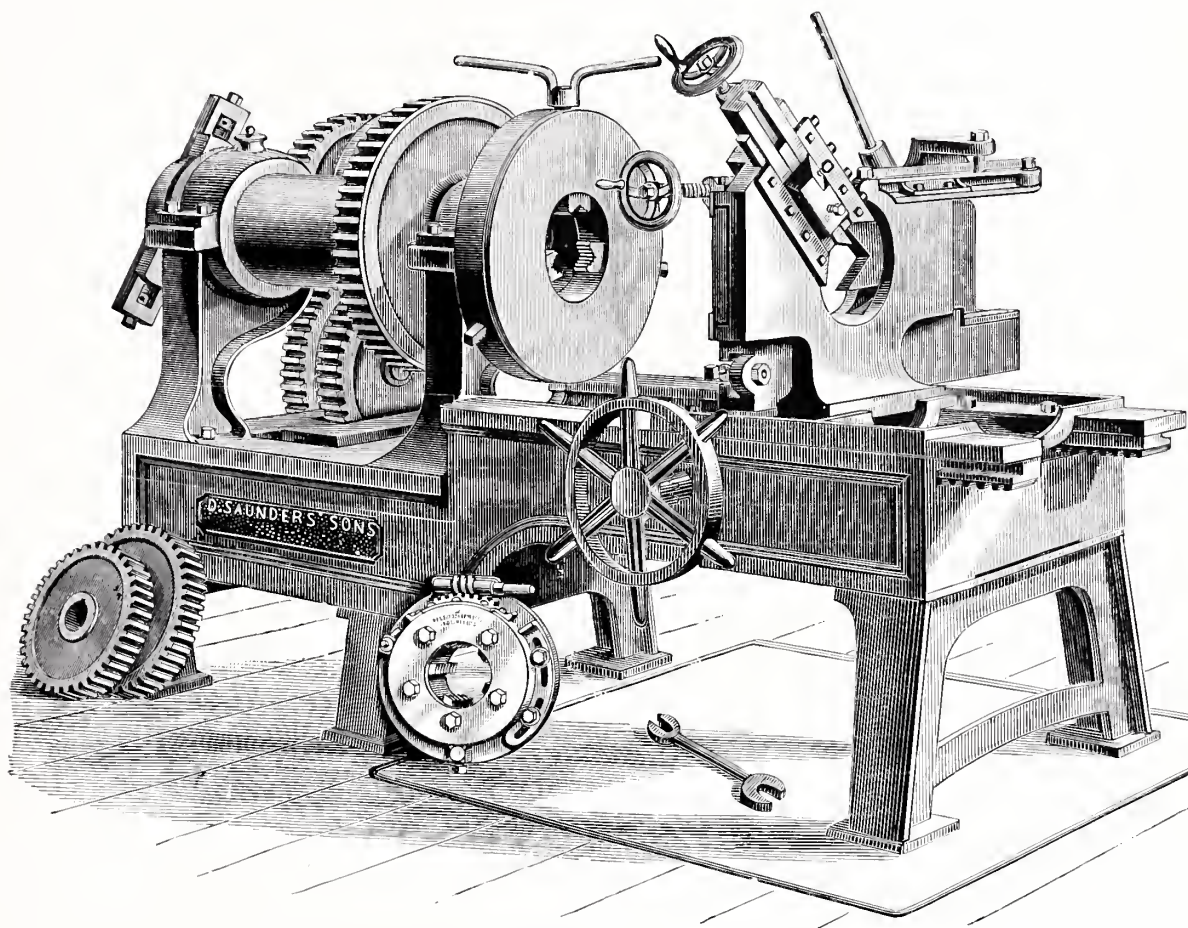


Fig. 1564.

No. 5 threads and cuts off pipe $1\frac{1}{4}$ to 6 inches, with countershaft, complete; solid dies, $1\frac{1}{4}$ to 2 inches; cutter dies, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, 5, 6 inches, right-hand . . . . .	\$875.00
No. 5 Machine with one die-head to thread $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, $4\frac{1}{2}$ , 5 and 6 inches. Set of Standard blank gauges to set easers to, countershaft, oil-can, wrenches and solid die attachment . . . . .	925.00
No. 5 Machine threads and cuts off pipe $1\frac{1}{4}$ to 6 inches, with patent adjustable expanding dies with interchangeable easers, with two die-heads, one to thread $1\frac{1}{4}$ , $1\frac{1}{2}$ and 2 inches, the other $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, $4\frac{1}{2}$ , 5 and 6 inches. Set of Standard blank gauges to set easers to, countershaft, oil-can, wrenches and solid die attachment . . . . .	975.00
No. 5, with the Standard patent adjustable expanding dies, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, 5, 6 inches, right-hand . . . . .	1,025.00
No. 5, with the Standard patent adjustable expanding dies, $1\frac{1}{4}$ , $1\frac{1}{2}$ , 2, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, 5, 6 inches, right-hand . . . . .	1,100.00
No. 6 threads and cuts off pipe $2\frac{1}{2}$ to 8 inches, with countershaft, complete; cutter dies, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, 5, 6, 7, 8 inches, right-hand . . . . .	1,050.00
No. 6 Machine threads and cuts off pipe $2\frac{1}{2}$ to 8 inches, with patent adjustable expanding die with interchangeable easers, to thread $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, $4\frac{1}{2}$ , 5, 6, 7 and 8 inches. Set of Standard blank gauges to set easers to, countershaft, oil-can and wrenches . . . . .	1,075.00
No. 6 threads and cuts off pipe $2\frac{1}{2}$ to 8 inches, with the Standard patent adjustable expanding dies, $2\frac{1}{2}$ , 3, $3\frac{1}{2}$ , 4, 5, 6, 7, 8 inches, right-hand . . . . .	1,275.00
Automatic Oil Pump, extra . . . . .	20.00



PLUMBERS', STEAM AND GASFITTERS' TOOLS — CONTINUED.

SPEEDS OF COUNTERSHAFTS — Fig. 1564.

No. 5 — 180 revolutions per minute ; pulleys, 16 inches diameter — one fast, 4½ inches face ; two loose, 8½ inches face each.

No. 6 — 172 revolutions per minute ; pulleys, 16 inches diameter — one fast, 4½ inches face ; two loose, 8½ inches face each. Pulley on line shaft, 22 inches face and diameter to drive countershaft at required speed.

No. 5 — Weight, complete, 4,800 lbs. No. 6 — Weight, complete, 5,600 lbs. Floor space, 7 ft. 6 in. by 3 ft. 6 in.

In cutting and threading pipe use only the best lard oil.

Can furnish machines up to 16-inch Pipe. Send for estimates.

MACHINISTS' SCREW PLATE.

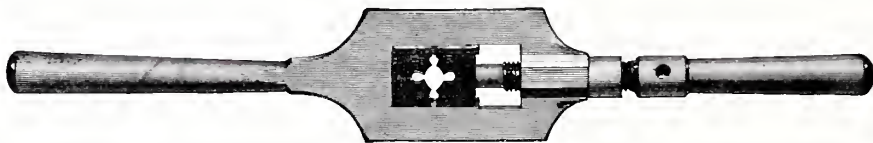


Fig. 1565.

Trade No.	Length. In.	Dies, Pair.	Taps.	Cutting Size, Inches.	Price.
2½	11½	3	3	¼, 20; ⅜, 16; ½, 12.	\$5.00
2½ A	11½	3	3	¼, 20; ⅜, 18; ½, 16.	4.80
2½ B	11½	3	3	⅝, 18; ⅞, 16; 1, 14.	5.00
2½ C	11½	5	5	¼, 20; ⅜, 18; ½, 16; ⅞, 14; 1, 12.	7.50
3	14	3	3	⅜, 16; ⅞, 14; 1, 12.	5.50
3 A	14	3	3	⅜, 16; ⅞, 12; 1, 11.	5.80
3 B	14	3	3	⅞, 14; 1, 12; 1½, 11.	5.90
3 C	14	4	4	⅜, 16; ⅞, 14; 1, 12; 1½, 11.	7.15
3 D	14	6	6	¼, 20; ⅜, 18; ½, 16; ⅞, 14; 1, 12; 1½, 11.	9.60
4 A	19	3	3	½, 12; ⅞, 11; 1½, 10.	6.90
4 B	19	7	7	¼, 20; ⅜, 18; ½, 16; ⅞, 14; 1, 12; 1½, 11; 2, 10.	13.50
7 A	22	3	3	¼, 10; ⅜, 9; 1, 8.	10.00
7 B	22	9	9	¼, 20; ⅜, 18; ½, 16; ⅞, 14; 1, 12; 1½, 11; 2, 10; 2½, 9; 1, 8.	21.00
7 C	22	7	7	⅜, 16; ⅞, 14; 1, 12; 1½, 11; 2, 10; 2½, 9; 1, 8; 3, 10; 4, 9; 1, 8; 1½, 7.	18.00
8 A	26	4	4	⅜, 10; ⅞, 9; 1, 8; 1½, 7.	13.60
8 B	26	7	7	½, 12; ⅞, 11; 1, 10; 1½, 9; 1, 8; 1½, 7; 1½, 7.	24.00
10 A	48	6	6	1½, 6; 1½, 6; 1½, 5½; 1½, 5; 1½, 5; 2, 4½.	50.00
10 B	48	9	9	1, 8; 1½, 7; 1½, 7; 1½, 6; 1½, 6; 1½, 5½; 1½, 5; 1½, 5; 2, 4½.	64.50
10 C	48	11	11	¼, 10; ⅜, 9; 1, 8; 1½, 7; 1½, 7; 1½, 6; 1½, 6; 1½, 5½; 1½, 5; 1½, 5; 2, 4½.	72.00
12	12½	2		⅜, 14; ⅞, 12.	3.00
13	15½	3		⅜, 14; ⅞, 12; 1, 12.	3.50

We furnish the above Plates with Machinists' Taper Hand Taps.

PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

BIT-BRACE DIE HOLDERS.

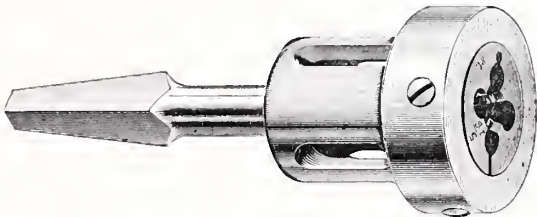


Fig. 1566.

Trade No.		Diameter. Inches.	No. of Bit-Brace Taps.	Cutting Size. Inches.	Price.
3 N	No. 3 Holder, with Round Adjustable Die . . . .	1	1	$\frac{3}{16}$ , 24.	\$2.00
3 O	" 3 " " " " " . . . .	1	1	$\frac{1}{4}$ , 20.	2.00
3 P	" 3 " " " " " " . . . .	1	1	$\frac{5}{16}$ , 18.	2.00
3 Q	" 3 " " " " " " . . . .	1	1	$\frac{3}{8}$ , 16.	2.25
3 R	" 3 " " " " " " . . . .	1	1	$\frac{7}{16}$ , 14.	2.60
3 S	" 3 " " " " " " . . . .	1	1	$\frac{1}{2}$ , 12.	2.75

All Dies and Taps will be furnished even size unless otherwise ordered. Extra Holders furnished for \$1.00 each.

SMITH PATENT FRICTION DRILL.

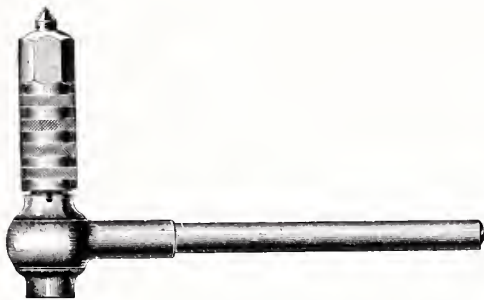


Fig. 1567.

SMITH COMBINATION FRICTION DRILL.

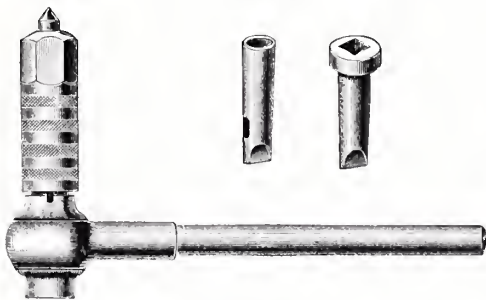


Fig. 1568.

Fig. 1567.	No. 1, 10-inch handle . . . . .	\$10.00
" 1567.	No. 2, 12 " " . . . . .	12.00
" 1567.	No. 3, 15 " " . . . . .	15.00
" 1567.	No. 5, 20 " " . . . . .	23.00

No lost motion. Instantaneous Clutch. Will work successfully in places so contracted that a ratchet is entirely useless.

Fig. 1568. Made for round and square taper shank drills, with sockets. This tool is handsomely finished, having hexagonal top to sleeve, to which a malleable iron wrench is fitted for making up feed-screw.

12-inch handle (includes wrench) . . . . .	\$20.00
--	---------



# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

SMITH BOILER DRILL.



Fig. 1569.

Fig. 1569.	No. 1, 10-inch Handle	.....	\$9.00
"	1569. No. 2, 12 " "	.....	10.50
"	1569. No. 3, 15 " "	.....	13.50
	Wrench for No. 1 and 2	.....	.15

Fig. 1570.	A Stock, length of handle, 6-inch	. \$5.00
	(Including Spindle and 3 Sockets.)	
"	1570. C Stock, length of handle, 10-inch	8.00
	(Including Spindle for Wrench.)	
"	1570. Sleeve with Feed-Screw, net	1.00
"	1570. Sockets for A Stock, extra, net, each,	.10
	(Sizes, $\frac{3}{8}$ , $\frac{1}{2}$ , $\frac{5}{8}$ -inch.)	
"	1570. Sockets for C Stock, extra, net, each,	.25
	(Sizes, $\frac{3}{8}$ , $\frac{1}{2}$ , 1, 1 $\frac{1}{8}$ , 1 $\frac{1}{4}$ .)	
	Larger sizes at proportional prices.	

In ordering sockets for nuts or leg-bolts, state the diameter of nut, and the top of the bolt. Also state whether square or hexagonal sockets are wanted.

COMBINATION WRENCH, DRILL-BIT, AND SCREW DRIVER STOCK.



Fig. 1570.

LOWELL RATCHET DRILL.

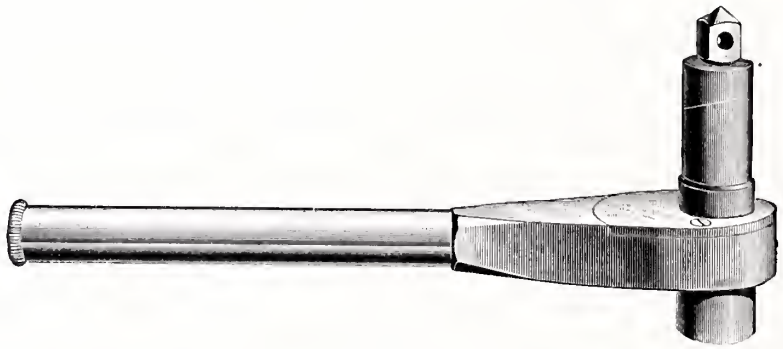


Fig. 1571.

Fig. 1571.	No. 1, 10-inch Handle	.....	\$6.00
"	1571. " 2, 12 " "	.....	8.00
"	1571. " 3, 15 " "	.....	10.00
"	1571. " 4, 18 " "	.....	12.00

BOILER RATCHETS.

No. 1,	10-inch Handle	.....	\$6.00
" 2,	12 " "	.....	8.00
" 3,	15 " "	.....	10.00







# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

## THE SCIENTIFIC KIT OF TOOLS.

COMBINATION ANVIL AND VISE.

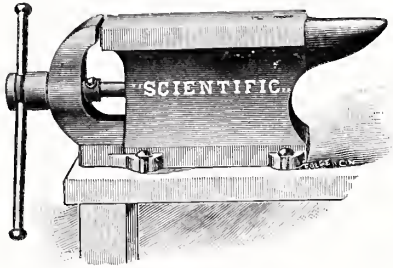


Fig. 1577.

Hardened face, finely polished,  
weight 50 lbs.

FARMERS' FORGE, No. 5B.

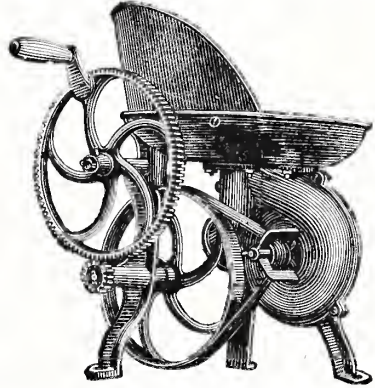


Fig. 1578.  
Will heat  $\frac{1}{2}$ -inch iron.

BLACKSMITHS' COLD  
CHISEL.



Fig. 1579.

Solid Cast Steel,  $1\frac{1}{2}$  lb.

BLACKSMITHS' HOT  
CHISEL.



Fig. 1580.

Solid Cast Steel,  $1\frac{1}{2}$  lb.

BLACKSMITHS' TONGS.



Fig. 1581.

Wrought Iron, 18 inches.

BLACKSMITHS' DRILL PRESS.

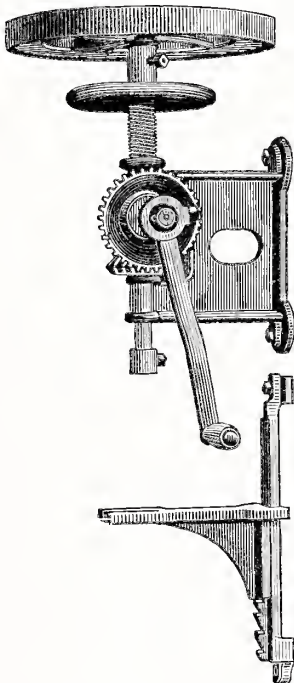


Fig. 1582.

Hand Feed, weighs 50 lbs.

SCREW PLATE.



Fig. 1583.

3 Taps, 3 Set Dies, Cut  $\frac{1}{8}$ ,  $\frac{1}{4}$  and  $\frac{3}{8}$ -inch.

BLACKSMITHS' HAMMER  
AND HANDLE.

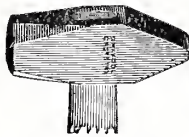


Fig. 1584.  
Weighs 2 lbs.

ADZ EYE SHOEING HAMMER  
AND HANDLE.



Fig. 1585.  
Weighs 9 oz.

FARRIERS' KNIFE, WOSTENHOLM.



Fig. 1586.

FARRIERS' PINCERS.



Fig. 1587.  
Cast Steel, 12-inch.



# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

The Vise shown in Fig. 1577 is solid and strong, face  $4\frac{1}{2} \times 9$  inches, jaws 3 inches wide and open 4 inches. The drill is not a cheap bench drill, but a genuine Blacksmith Post Drill with an adjustable table. Drills  $\frac{3}{4}$ -inch hole to the centre of 17-inch circle.

We warrant every tool the best made and cheapest on the market.

Price for complete kit as shown . . . . . \$28.00

Can furnish separate Tools as follows:

One Farmers' Forge, No. 5B . . . Each.	\$8.00	One Combination Anvil and Vise . Each.	\$6.00
" 2-lb. Steel Hammer and Handle "	1.20	" Blacksmiths' Drill . . . . . "	8.00
" 1 $\frac{1}{2}$ -lb. Hot Chisel, Steel. . . . . "	.70	" Pair Tongs, 18-inch. . . . . "	.70
" 1 $\frac{1}{2}$ -lb. Cold " " " " " "	.70	" Pair Pincers . . . . . "	1.30
" Steel Shoeing Hammer and Handle . . . . . "	.70	" Screw Plate . . . . . "	6.00
" Farriers' Knife . . . . . "	.70	Has 3 Taps and 3 Set Dies, cut $\frac{1}{8}$ , $\frac{3}{16}$ and $\frac{1}{4}$ -inch.	

## PAYNE'S "ECLIPSE" TAPPING MACHINE.

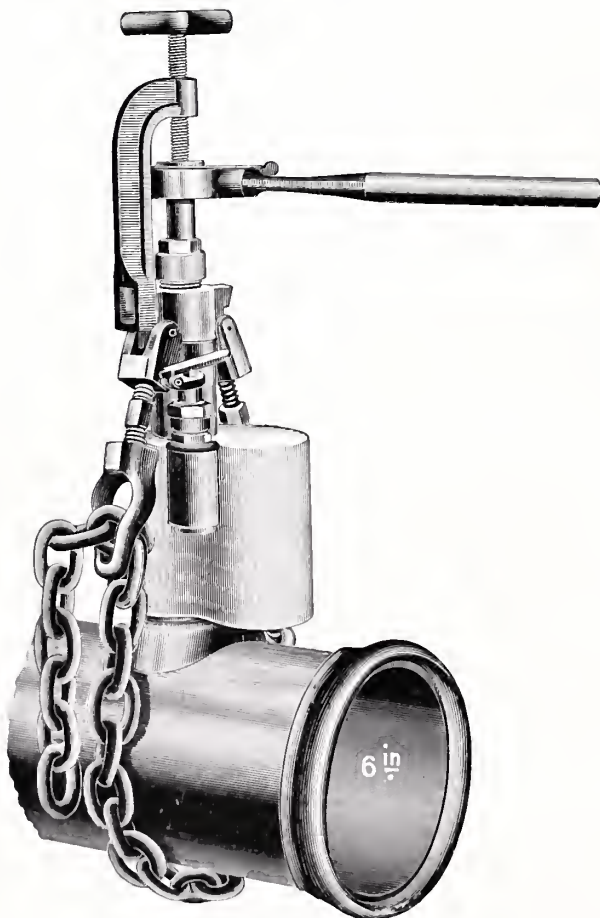


Fig. 1588.

For Tapping Water Mains or other Pipes under pressure. Patented July 12, 1892.

It is reduced to the acme of perfection and simplicity, having neither valve nor pet cock to get out of order and no revolving head to get sprung or joint to leak. The pressure or strain of the feed-screw pulls directly on the chain, thereby relieving the machine of all undue strain. These machines are made of the best bronze metal. The saddles are made of malleable iron and will not break. No. 1 will tap all sizes up to and including 1 inch; No. 2 will tap all sizes up to and including 2 inches. For tapping gas mains the No. 1 machine will tap and put in a 2-inch plug. A No. 2 machine will tap and put in a 4-inch plug without the escape of gas. For low-pressure gas mains use our "Daisy" or "Ideal" machine. See pages 506 and 507. "Eclipse" No. 1, with 1-inch tap and cock, saddle and chain for 6-inch pipe, everything that you would have to carry to make a 1-inch tap complete, weighs 24 lbs. Our "Eclipse" No. 2, with all appliances for making a 2-inch tap, weighs 35 lbs.

These machines are now made with "Bail" Feeder Yoke, like that shown on "Daisy" machine, page 506.

Every Machine tested to 600 lbs. to the square inch and guaranteed.

This Machine taps on the top or side, or at any angle desired.

Fig. 1588. No. 1, complete with  $\frac{3}{8}$ ,  $\frac{1}{2}$ , and 1-inch taps and four saddles . . . . . \$100.00

" 1588. No. 2, complete with 1,  $1\frac{1}{2}$ , and 2-inch taps and four saddles . . . . . 150.00

(The No. 2 Machine will tap all the small sizes by getting the taps and mandrels extra.)

# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

## EXTRA TOOLS FOR PAYNE'S "ECLIPSE" TAPPING MACHINE— Fig. 1588.

Mandrels . . . . .	\$1.00	Clevises . . . . .	\$ .25
Saddles . . . . .	1.00	Feeder Yoke . . . . .	1.00
Chain . . . . .	1.00	Steel Feeder Screws . . . . .	1.00
Tightening Bolts . . . . .	.25	Malleable Wrenches . . . . .	.25
Harps . . . . .	.25	Gaskets . . . . .	.10

"ECLIPSE," SECTIONAL VIEW.

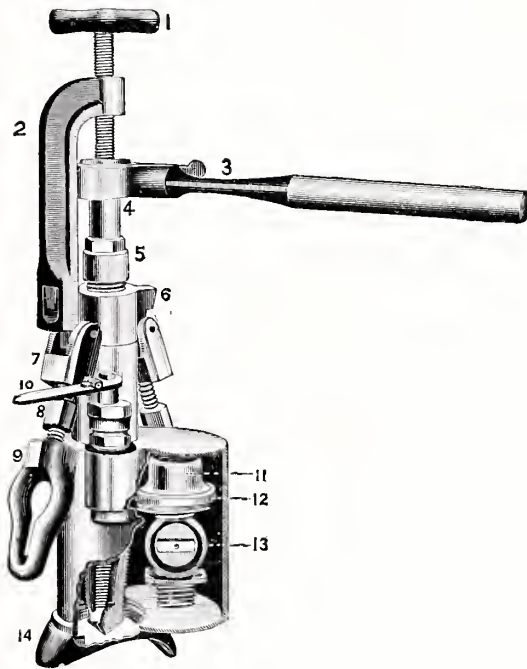


Fig. 1589.

## TAPS FOR PAYNE'S TAPPING MACHINE.

No. 1.                      No. 1 E.                      No. 2 E.

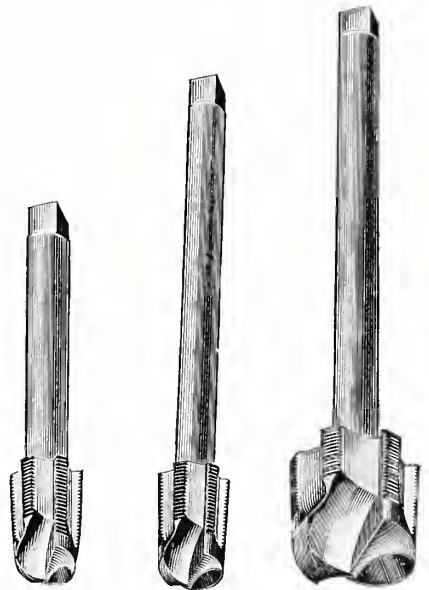


Fig. 1590.

Fig. 1591.

Fig. 1592.

Fig. 1590. No. 1, 9 $\frac{3}{4}$  inches long,  $\frac{1}{16}$  shank, fits "Crow," "Daisy" and "Ideal" Gas Tapping Machines.

Fig. 1591. No. 1 E, 13 $\frac{3}{4}$  inches long,  $\frac{1}{16}$  shank, fits No. 1 "Eclipse" Water Tapper.

Fig. 1592. No. 2 E, 16 inches long,  $\frac{1}{16}$  shank, fits No. 2 "Eclipse" Water Tapper.

Taps for all styles machines same price.

SIZE.	INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2
Figs. 1590, 1591, 1592.		\$3.00	3.00	4.00	4.50	4.50	5.00	6.00	7.00	8.00

# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

## PAYNE'S IMPROVED "DAISY" DRY PIPE TAPPING MACHINE.

This machine is made of bronze metal, with malleable iron saddles to fit different size mains. It is much stronger than the old style "Crow," as the metal extends completely around the tap and drill, and prevents the gas from escaping. There is a stuffing box around the stem of the drill, just above the tap, and with a rubber gasket between the saddle and main, and also between the machine and saddle, so that it is absolutely gas tight. There is a thumb screw valve on the side that is left open for oiling the drill (when drilling wrought iron pipes) and which is easily closed when the gas begins to escape.

The whole weight of this "Daisy" Machine, with one Saddle, Chain, Feeder, Ratchet, and one-inch Tap and Drill, is 15 pounds.

It will tap on the top or side, or at any angle desired.

The "Daisy" is made for low-pressure gas mains.

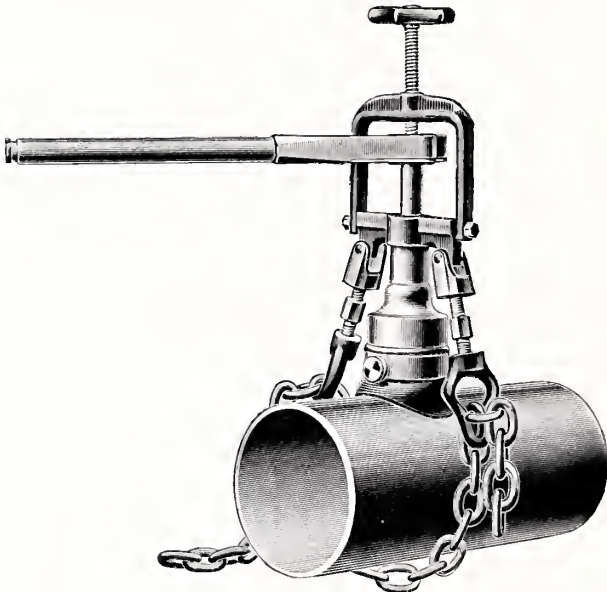


Fig. 1593.

Fig. 1593. "Daisy" Machine, with one Saddle, Chain, Feeder Yoke, and Ratchet . . . . . \$20.00

## "CROW," FOR MAINS.

The saddle which fits the main, is of malleable iron, and the body, which holds the tap and drill, is of bronze metal, and light and very strong. The long neck or upper part of machine makes a sleeve and guide for the drill shank. The feeder yoke hooks on the top of the machine, and the drill is forced in by the feeder screw, and the drill and tap is worked with the ratchet. The saddles are made for all sizes of pipe, and screw onto the lower end of the machine with a coarse thread.

The whole weight of the machine, with one six-inch Saddle, Chain, Feeder Yoke, Ratchet, and one-inch Tap and Drill, is 17 pounds.

This machine will tap on the top or side, or at any angle desired.

By ordering Chain proper length and extra Saddles, this machine will tap any size of pipe.

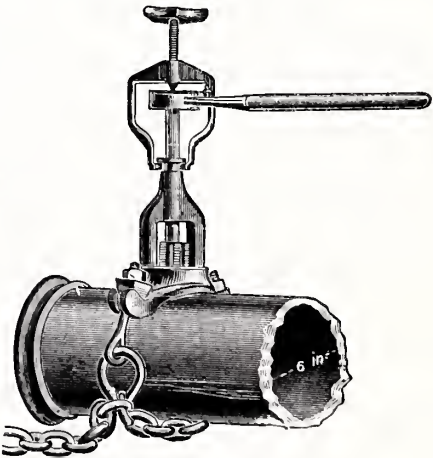


Fig. 1594.

Fig. 1594. "Crow," with 1 Saddle, Chain, Feeder Yoke and Ratchet . . . . . \$15.00  
Extra Saddles . . . . . Each. 1.00

SIZE . . . . . INCHES.	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Taps and Drills . . . . .	\$3.00	3.00	4.00	4.50	5.00	6.00	7.00	8.00



# PLUMBERS', STEAM AND GASFITTERS' TOOLS — CONTINUED.

"IDEAL" TAPPING MACHINE.

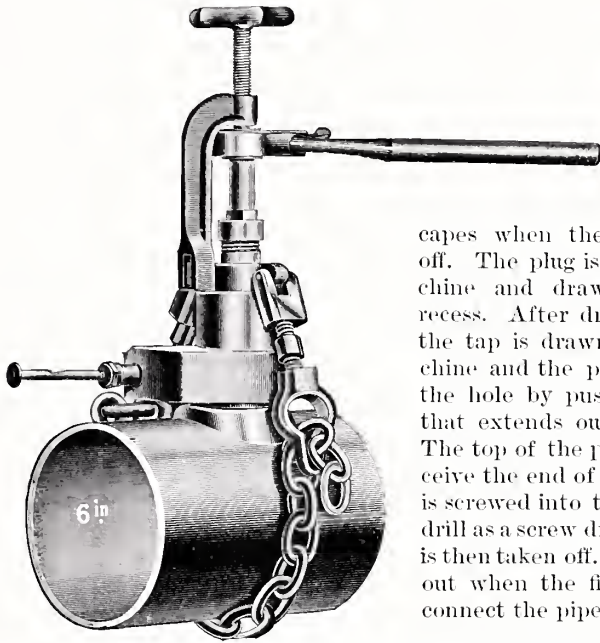


Fig. 1595.

er, Ratchet, one-inch Tap and Plug, is 18 pounds. It will tap on the top, side, or at any angle desired.

Fig. 1595. "Ideal" Machine, one Saddle, Chain, Feeder and Ratchet, \$35.00

This machine is made of bronze metal, with malleable iron saddles, to fit different size mains. It is a great improvement over our old patent "Crow." It does not allow the gas to escape while tapping, and also plugs the hole when tapped so that no gas escapes when the machine is taken off. The plug is placed in the machine and drawn back into the recess. After drilling and tapping, the tap is drawn up into the machine and the plug is placed over the hole by pushing in the handle that extends out from the recess. The top of the plug is made to receive the end of drill and the plug is screwed into the pipe, using the drill as a screw driver. The machine is then taken off. The plug is taken out when the fitters are ready to connect the pipe to the main.

The weight of the "Ideal" machine with one Saddle, Chain, Feeder

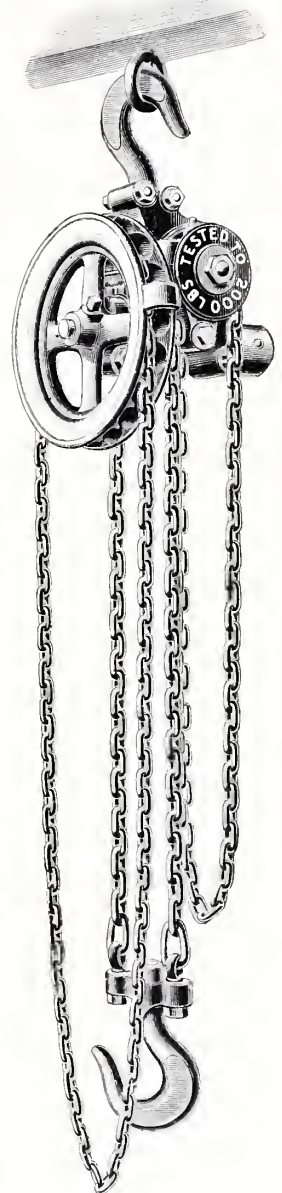


Fig. 1596.

## DUPLEX CONVERTIBLE SCREW BLOCKS.

Fig. 1596. With these blocks one man can lift 1,000 to 4,000 lbs. They hold the load at any point and will not run down. When arranged for safety lowering the hand-chain must be continuously operated or the load will stop; when converted for dispatch lowering, the load can be "spun" down after it is started. This conversion can be readily made by any one.

Capacity in Tons.	*Hoists.	Price, Complete.	Price Extra Hoists.		Weight, Pounds.
			First Foot.	Additional Ft.	
$\frac{1}{2}$	8	\$25.00	1.50	1.20	44
1	8	30.00	1.75	1.40	56
$1\frac{1}{2}$	8	40.00	2.05	1.65	76
2	9	50.00	2.40	1.95	110

\*NOTE—Figures denote approximate height which blocks, with regular lengths of chain, will hoist from level on which operator stands.



# PLUMBERS', STEAM AND GASFITTERS' TOOLS—CONTINUED.

MUELLER'S TAPPING MACHINE,  
FOR GAS AND WATER MAINS.

Water Tapping Machine complete, includes:

- 1 each, Combined Drill and Tap— $\frac{1}{2}$ ,  $\frac{3}{8}$ ,  $\frac{1}{4}$  and 1-inch.
- 1 each, Screw or Hexagon, Plug— $\frac{1}{2}$ ,  $\frac{3}{8}$ ,  $\frac{1}{4}$  and 1-inch.
- 4 Malleable Iron Saddles, any size.
- 1 Chain for any size of Pipe.

Fig. 1597. . . . .	\$100.00
1-inch Comb, Drill and Tap . . . . .	6.50
$\frac{3}{4}$ -inch Comb, Drill and Tap . . . . .	5.50
$\frac{5}{8}$ -inch Comb, Drill and Tap . . . . .	4.50
$\frac{1}{2}$ -inch Comb, Drill and Tap . . . . .	4.00
$\frac{3}{8}$ -inch Comb, Drill and Tap (special order). . . . .	3.75
Plugs—Screw or Hexagon . . . . . Each.	.60
Malleable Iron Saddles . . . . . “	1.00
$7\frac{1}{2}$ -inch Pure Rubber Gasket . . . . . “	1.00
$4\frac{1}{2}$ -inch Pure Rubber Gasket . . . . . “	.25
Power Clevis, net . . . . .	5.00

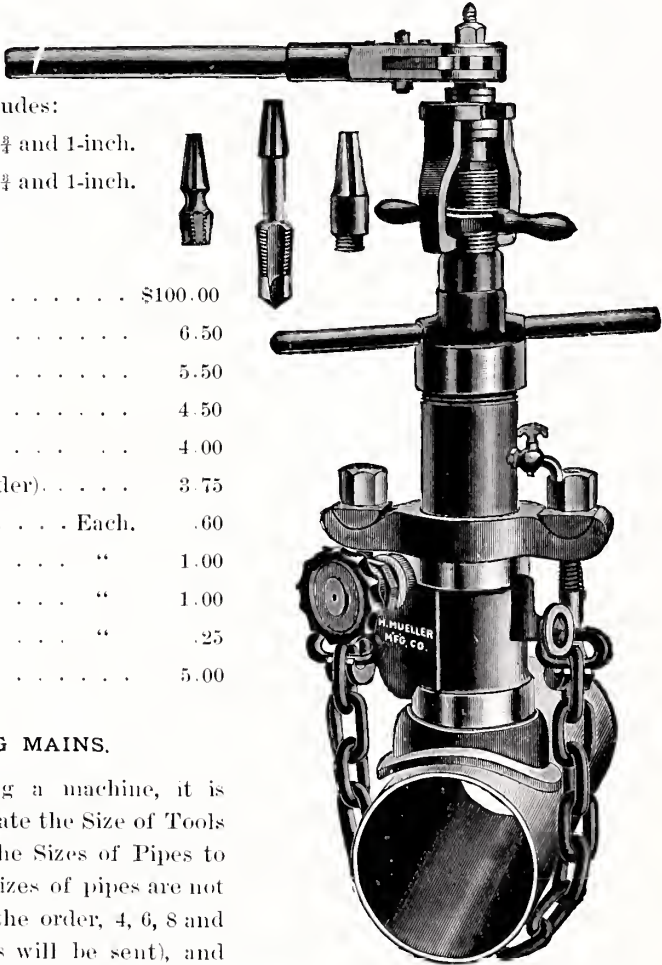


Fig. 1597.

## “CROWS” FOR TAPPING MAINS.

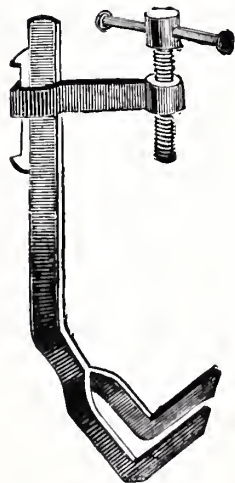


Fig. 1598.

In ordering a machine, it is necessary to state the Size of Tools desired, also the Sizes of Pipes to be tapped (if Sizes of pipes are not mentioned in the order, 4, 6, 8 and 10-inch Saddles will be sent), and whether Screw Plugs or Hexagon Plugs are wanted. If style of plugs is not mentioned, screw plugs will be sent.

Full instructions accompany every machine.

Fig. 1598. No. 1, for $1\frac{1}{2}$ to 3-inch Pipe . . . . .	Each.	\$10.50
“ 1598. No. 2, for $1\frac{1}{2}$ to 6-inch Pipe . . . . .	“	13.00
“ 1598. No. 3, for $1\frac{1}{2}$ to 12-inch Pipe . . . . .	“	16.00



IMPROVED PORTABLE FORGES.

No. 2. HALF OPEN HOOD.



Fig. 1603.

No. 4. HALF OPEN HOOD.



Fig. 1604.

	No.	Style Top.	Size Blower.	Size Pan.	Height Pan.	Weight.	Price.
Fig. 1603.	1	No Hood . . . . .	10-inch.	21 in. diam.	33-inch.	117 lbs.	\$20.00
" 1603.	2	Half Open Hood . .	"	21 " "	"	127 "	20.00
" 1603.	3	Hood with Doors . .	"	21 " "	"	140 "	20.00
" 1604.	4	Half Open Hood . .	"	22 x 33	31-inch.	157 "	20.00
" 1605.	5	" " " . . . . .	"	26½ x 38½	"	173 "	25.00

No. 5 POWER FORGE.

DESCRIPTION OF FORGES.

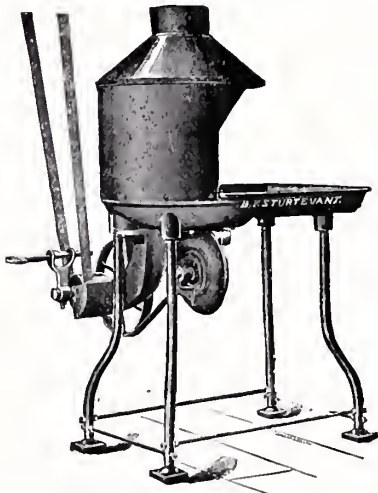


Fig. 1605.

Figs. 1603, 1604 and 1605 show the celebrated Sturtevant Forge.

Nos. 1, 2 and 3 are exactly the same as regards pan, legs, blower and running gear, the only difference being in the hoods, which are designed to meet the various wants of customers. No. 1 has no hood, but simply a back plate or visor, and is useful whenever the escaping smoke is not objectionable. No. 2 is built as shown above. No. 3 has a hood provided with doors and entirely surrounding the pan. The smoke may be carried away from the tops of Nos. 2 and 3 by pipes connected with a chimney, or, better still, the smoke from any number may be removed by a single exhausting fan connecting with them.

Nos. 4 and 5 differ only in the size of the pan, which is elongated and much larger than that in Nos. 1, 2 and 3, and consequently has a capacity for larger work. The No. 4 is the favorite style for general work, and is capable of making a three or four-inch weld in less time than any other forge of the same size.

The running gear of all the hand power forges, Nos. 1 to 5, inclusive, is strong, simple and easily operated.



NORTON RATCHET LIFTING JACK.

BALL-BEARING JACK.

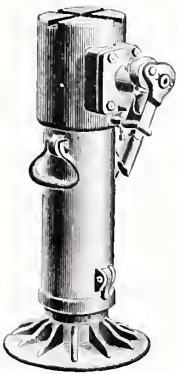


Fig. 1606.

JACK WITH FOOT LIFT.

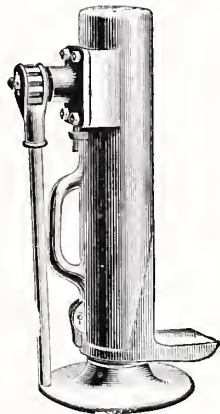


Fig 1607.

BALL-BEARING JACK, 20 to 50 TONS CAPACITY.

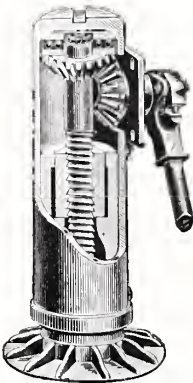


Fig. 1608.

BALL-BEARING JACK WITH HOOK.

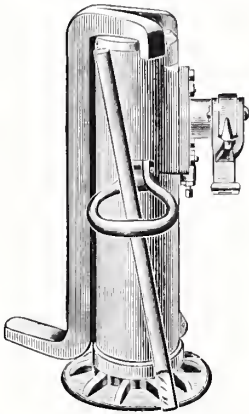


Fig. 1609.

LITTLE GIANT. STYLE "D."

		Tons.	Height Inches.	Rise. Inches.	Weight Lbs.	Price of Hook.	Price of Jack.
Fig. 1606.	Ball Bearings. . . .	20	26	14	90	\$6.00	80.00
" 1606.	" " " " " " " "	20	33	20	110	6.00	90.00
" 1606.	" " " " " " " "	25	26	14	90	6.00	90.00
" 1606.	" " " " " " " "	25	33	20	110	6.00	95.00
" 1606.	" " " " " " " "	35	26	14	165	8.00	140.00
" 1606.	" " " " " " " "	35	31	18	190	8.00	150.00
" 1606.	" " " " " " " "	50	21½	10	150	Cast on Shell.	150.00
" 1607.	" " " " " " " "	10	20	10	60	" " "	24.00
" 1607.	Ball Bearings. . . .	15	24	12	80	" " "	60.00
" 1609.	" " " " " " " "	15	22	12	80	5.00	25.00
" 1610.	" " " " " " " "	10	11	6	36	"	20.00
Traversing Jack . . . . .		20	26	12	150	Travel 13 in.	125.00
Track Jack. . . . .		10	26	15	70	"	20.00

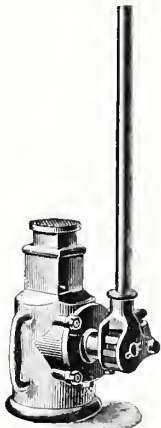


Fig. 1610.

WROUGHT IRON JACK SCREWS WITH IRON STANDS, LOOSE OR SWIVEL CAPS.



Fig. 1611.

Diameter of Screw.	Length of Screw.	Thread Cut.	Will Raise	Price.
1½ inches.	11 inches.	8 inches.	6 inches.	\$6.00
1¾ " "	12 " "	9 " "	7 " "	7.00
2 " "	15¼ " "	12 " "	9 " "	10.00
2½ " "	17½ " "	14 " "	10 " "	14.00
3 " "	20 " "	16 " "	12 " "	16.00

In ordering, be sure to mention whether you want loose or swivel caps, for we can furnish them both ways.



HYDRAULIC JACKS.

PLAIN JACK.

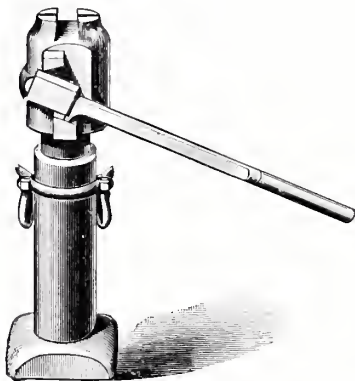


Fig. 1612.

BASE JACK.

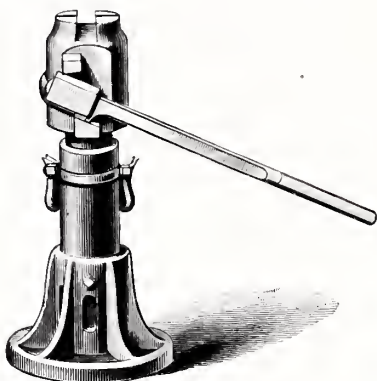


Fig. 1613.

CLAW OR GROUND LIFTING JACK.

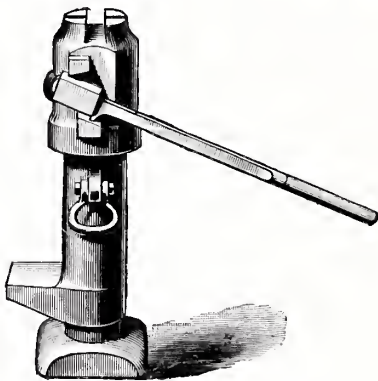


Fig. 1614.

Tons, Lift . .	4	4	7	7	7	10	10	10	15	15	15	20	20	20	30	30	30	40	40
Run Out . In.	12	24	12	18	24	12	18	24	12	18	24	12	18	24	9	12	18	12	18
Height . . "	24	37	25	32	38	25	32	39	26	32	39	26	33	39	22	26	33	27	34
Size Bottom .	4*	4*	4½*	4½*	4½*	6*	6*	6*	6½*	6½*	6½*	7*	7*	7*	8†	8†	8†	9†	9†
Weight . . . .	46	60	64	72	80	80	98	110	102	120	140	127	155	180	146	194	260	280	320
Fig. 1612, Price.	\$60.	65.	70.	73.	75.	80.	95.	110.	100.	125.	150.	120.	145.	170.	150.	175.	210.	210.	250.

Tons, Lift . .	4	4	7	7	7	10	10	10	15	15	15	20	20	20	30	30	30	40	40
Run Out . In.	12	24	12	18	24	12	18	24	12	18	24	12	18	24	9	12	18	12	18
Height . . "	23	37	25	31	38	25	31	39	25	32	39	26	33	39	22	26	33	27	33
Size Bottom .	9½*	9½*	10*	10*	10*	11*	11*	11*	12*	12*	12*	13*	13*	13*	14*	14*	14*	14½*	14½*
Weight . . . .	61	80	82	100	120	109	125	145	135	158	176	169	198	228	210	259	300	320	360
Fig. 1613, Price.	\$60.	65.	80.	85.	90.	95.	110.	125.	125.	150.	175.	150.	175.	200.	170.	200.	235.	240.	280.

Tons, Lift . .	4	4	7	7	7	10	10	10	15	15	15	20	20	20	30	30	30	40	40
Run Out . In.	12	24	12	18	24	12	18	24	12	18	24	12	18	24	9	12	18	12	18
Height . . "	24	37	25	31	38	25	32	39	26	32	39	26	33	39	22	26	33	27	33
Size Bottom .	4*	4*	4½*	4½*	4½*	6*	6*	6*	6½*	6½*	6½*	7*	7*	7*	8†	8†	8†	9†	9†
Weight . . . .	64	94	90	110	123	123	144	170	162	189	207	245	228	210	310	310	310	310	310
Fig. 1614, Price.	\$60.	65.	85.	88.	90.	100.	120.	145.	150.	185.	200.	240.	240.	240.	250.	250.	250.	250.	250.

Special sizes to order.      \* Square.      † Round.

## PUMP DEPARTMENT.

IN this department of our business we may justly feel proud, as we are recognized by all in this line of trade in the East as headquarters for Pumps and Hydraulic Machinery, carrying, as we do, the largest and most complete variety of Pumps of any jobbers in the United States. We can furnish from our stock the smallest Cistern Pump made, or a pump capable of handling thousands of gallons per minute, together with all attachments, such as suction pipe or hose, valves, fittings, etc.

**CYLINDERS**—We carry a full assortment of all sizes in iron and brass from 1½-inch to 6-inch, including a full line of Drop Valve Artesian Well Cylinders.

**SPECIAL PUMPS**—With our facilities we can at short notice fit any of our Pumps for special work, or construct pumps for such work as our regular stock is not adapted.

**MAKES OF PUMPS**—As is generally known, we represent the Goulds Manufacturing Company of Seneca Falls, N. Y., the largest factory in the world, and are exclusive agents for them in New England. Besides the Goulds Pumps, we have in stock a full assortment of the leading styles and sizes of the Union and W. & B. Douglas makes.

**PRICES**—All prices quoted by us are in all cases as low as quoted by the makers themselves, so in ordering of us both delay and freights are saved.

In a Catalogue of this size, where only a limited space is devoted to Pumps, it is possible for us to show only a small portion of our extensive line. We have tried to illustrate here only those which are most commonly used, and to all customers who do not find herein a pump to do the work desired, we would be pleased to mail our large Pump Catalogue.

Write us your wants, stating plainly all particulars, and we will respond promptly, naming prices and giving the desired information.

## USEFUL NOTES ON PUMPS AND HYDRAULIC MACHINERY.

It will be our endeavor under this head to treat of facts and conditions under which our pumps may be operated, rather than indulge in the too common and fulsome praise which the long and favorable standing of the goods offered render unnecessary. There are certain conditions requisite to the successful operation of any pumps, and of these we will speak first.

**SUCTION PIPE**—This is the pipe below the lower valves, whether the valves are in the pump itself or in the cylinder a number of feet below the pump (yet above the surface of the water), and should not exceed twenty-five feet in vertical height, as water cannot be raised over thirty-three feet, theoretically, by atmospheric pressure. This pipe may, however, extend almost any distance horizontally, if care is taken that it fall evenly along its entire length from pump or cylinder to water supply. In this connection, as well as in long vertical suction pipes, we urge the use of a foot or cheek valve, providing pipe is protected from frost, as it retains water when pump is not in use. Properly, the suction pipe of single-acting cylinders and pumps should be half the diameter of working barrel, and in long pipes, or with pumps working fast, it may be increased, as is also true of double-acting pumps.

The following may be laid down as a safe rule for suction pipe:

### SIZE OF PUMP BARREL OR CYLINDER.

Size of Cylinder . . . . .	2 in.	2½ in.	3 in.	3½ in.	4 in.	5 in.	6 in.
Size of Suction . . . . .	1½ in.	1¼ in.	1½ or 1½ in.	1½ or 2 in.	2 or 2½ in.	2½ or 3 in.	3½ or 4 in.

These sizes hold good for double-barrel pumps, as each barrel draws alternately. Turns or elbows should be avoided as much as possible.

## PUMP DEPARTMENT — CONTINUED.

**CONNECTING OR DELIVERY PIPES**—The first term is applied only to pipe between pump standard and lower barrel or cylinder, and the last to same pipe as well, but more especially to describe pipe carrying water beyond pump to any point. These pipes in single-acting pumps may be a trifle smaller than suction pipe. In double-acting pumps they should be same size, and care should be exercised that both are amply large.

**HOT WATER**—No pump will draft hot liquids any distance for the reason that the vapor or steam rising from the liquid passes through the suction pipe into the pump and fills it with vapor instead of water. Therefore, for pumping hot liquids the pump should be placed as near as possible, forcing the liquid upward instead of lifting it by suction. A hot-water pump always requires metal valves throughout, and should be so ordered.

**POWER**—Power is measured by the work performed. A gallon of water weighs about eight and one-half pounds. Therefore, if a pump is passing ten gallons of water per minute, and lifting it one foot, eighty-five foot pounds per minute of power will be required to do it; lifting it twenty feet, twenty times eighty-five pounds, and so on.

A nominal horse-power means the power required to lift 33,000 pounds one foot in one minute, although actual experience proves that an ordinary horse working continuously will not develop nearly this power, and, probably, 25,000 pounds is a nearer estimate. The power of a man working continuously is variously estimated from one-fifth to one-eighth that of a horse, but we think the latter figure a safer one than the former. The conditions are somewhat changed by the number of strokes at which the pump barrel is worked.

**QUANTITY**—In connection with each pump will be found its diameter and length of stroke, together with the fraction or number of gallons it will pass per stroke or revolution (a double stroke), and to ascertain the number of gallons per minute delivered, multiply this quantity by the number of strokes or revolutions the pump is working.

It will be noticed, however, that we do not attempt to give a close decimal in these tables, and also submit several other capacity tables of our pumps working under varying conditions, which will give a more comprehensive idea of the work performed in a given time than might suggest itself without making actual computation.

**ESTIMATES**—We are always glad to give our customers the benefit of our advice on all practical questions relating to pumps, and while requirements of each may be different in detail, as a general rule, we should be advised on the following points: Depth and diameter of well, pit or stream; depth of water in well, pit or stream; height to which water is to be raised, that is, from surface of water to point of delivery; quantity required in a given time; power available or preferred.

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## RULES.

The mean pressure of the atmosphere is usually estimated at 14.7 lbs. per square inch, so that with a perfect vacuum it will sustain a column of mercury 29.9 inches, or a column of water 33.9 feet high.

To find the pressure in pounds per square inch of a column of water, multiply the height of the column in feet by .434. Approximately, we say that every foot elevation is equal to  $\frac{1}{2}$  lb. pressure per square inch; this allows for ordinary friction.

To find the diameter of a pump cylinder to move a given quantity of water per minute (100 feet of piston being the standard of speed), divide the number of gallons by 4, then extract the square root, and the product will be the diameter in inches of the pump cylinder.

To find quantity of water elevated in one minute running at 100 feet of piston speed per minute. Square the diameter of the water cylinder in inches and multiply by 4. Example: Capacity of a 5-inch cylinder is desired. The square of the diameter (5 inches) is 25, which multiplied by 4, gives 100, the number of gallons per minute (approximately).

# PUMP DEPARTMENT—CONTINUED.

## TABLE SHOWING AMOUNT OF WATER DISCHARGED PER STROKE BY A SINGLE-ACTING PUMP,

THE DIAMETER OF CYLINDER AND LENGTH OF STROKE BEING KNOWN.

THERE IS ALSO APPENDED A

## TABLE OF DIAMETERS AND AREAS OF CIRCLES;

THE DIAMETERS OF CIRCLES AND CYLINDERS BEING IDENTICAL.

Diameter of Pump Cylinder in Inches.	LENGTH OF STROKE IN INCHES, WITH CAPACITY PER STROKE IN GALLONS.											Diameters and Areas of Circles.	
												Diameter of Circle (Pump Cylinder), inches.	Area of Circle (Pump Cylinder), square inches.
	1	2	3	4	5	6	7	8	10	12	INCHES.		
1	.0034	.0068	.0102	.0136	.0170	.0204	.0238	.0272	.0340	.0408	Gallons.	1	.7854
1 $\frac{1}{4}$	.0053	.0106	.0159	.0212	.0266	.0319	.0372	.0425	.0531	.0637	"	1 $\frac{1}{4}$	1.2271
1 $\frac{1}{2}$	.0076	.0153	.0229	.0306	.0382	.0459	.0535	.0612	.0765	.0918	"	1 $\frac{1}{2}$	1.7671
1 $\frac{3}{4}$	.0104	.0208	.0312	.0416	.0521	.0625	.0729	.0833	.1041	.1249	"	1 $\frac{3}{4}$	2.4043
2	.0136	.0272	.0408	.0544	.0680	.0816	.0952	.1088	.1360	.1632	"	2	3.1416
2 $\frac{1}{4}$	.0172	.0344	.0516	.0688	.0860	.1033	.1205	.1377	.1721	.2071	"	2 $\frac{1}{4}$	3.9760
2 $\frac{1}{2}$	.0212	.0425	.0637	.0850	.1062	.1275	.1487	.1700	.2125	.2550	"	2 $\frac{1}{2}$	4.9087
2 $\frac{3}{4}$	.0257	.0514	.0771	.1028	.1285	.1543	.1800	.2057	.2571	.3085	"	2 $\frac{3}{4}$	5.9395
3	.0306	.0612	.0918	.1224	.1530	.1836	.2142	.2448	.3060	.3672	"	3	7.0686
3 $\frac{1}{4}$	.0359	.0719	.1078	.1438	.1795	.2156	.2515	.2875	.3594	.4313	"	3 $\frac{1}{4}$	8.2957
3 $\frac{1}{2}$	.0416	.0833	.1249	.1666	.2082	.2499	.2915	.3332	.4165	.4998	"	3 $\frac{1}{2}$	9.6211
3 $\frac{3}{4}$	.0479	.0957	.1435	.1914	.2393	.2871	.3350	.3828	.4785	.5743	"	3 $\frac{3}{4}$	11.044
4	.0544	.1088	.1632	.2176	.2720	.3264	.3808	.4352	.5440	.6528	"	4	12.566
4 $\frac{1}{2}$	.0688	.1377	.2065	.2754	.3442	.4131	.4819	.5508	.6885	.8262	"	4 $\frac{1}{2}$	15.904
5	.0850	.1700	.2550	.3400	.4250	.5100	.5950	.6800	.8500	1.0200	"	5	19.635
5 $\frac{1}{2}$	.1028	.2057	.3085	.4114	.5142	.6171	.7199	.8228	1.0285	1.2342	"	5 $\frac{1}{2}$	23.758
6	.1224	.2448	.3672	.4896	.6120	.7344	.8568	.9792	1.2240	1.4688	"	6	28.274
7	.1666	.3332	.4998	.6664	.8330	.9996	1.1662	1.3328	1.6660	1.9992	"	7	38.484
8	.2176	.4352	.6528	.8704	1.0880	1.3056	1.5232	1.7408	2.1760	2.6112	"	8	50.265
9	.2754	.5508	.8262	1.1016	1.3770	1.6524	1.9278	2.2032	2.7540	3.3048	"	9	63.617
10	.3400	.6800	1.0200	1.3600	1.7000	2.0400	2.3800	2.7200	3.4000	4.0800	"	10	78.540
12	.4896	.9792	1.4688	1.9584	2.4480	2.9376	3.4272	3.9168	4.8960	5.8752	"	12	113.098
15	.7650	1.5300	2.2950	3.0600	3.8250	4.5900	5.3550	6.1200	7.6500	9.1800	"	15	176.715
18	1.1016	2.2032	3.3048	4.4064	5.5080	6.6096	7.7112	8.8128	11.0160	13.2192	"	18	254.470
20	1.3600	2.7200	4.0800	5.4400	6.8000	8.1600	9.5200	10.8800	13.6000	16.3200	"	20	314.160
24	1.9584	3.9168	5.8752	7.8336	9.7920	11.7504	13.7088	15.6672	19.5840	23.5008	"	24	452.391

The capacities in gallons given in the foregoing table are for a Single-acting Pump, making one complete stroke (or revolution). The capacity of a Double-acting Pump is double that of a Single-acting Pump with the same diameter of cylinder and length of stroke.

To obtain the capacity of a Pump with diameter of Cylinder given in the table, but with a longer stroke than 12 inches (the longest stroke given in table), add or multiply the capacity to represent the required length of stroke.

For instance: The capacity of a Cylinder with an 18-inch stroke would be the same as that (having the same diameter) of a 12-inch stroke Cylinder, added to the capacity of a 6-inch stroke Cylinder; or the same result may be obtained by multiplying the capacity of a Cylinder with 6-inch stroke by 3. To obtain the amount of water discharged per minute, multiply the capacity per stroke by the number of strokes per minute.



PUMP DEPARTMENT — CONTINUED.

FRICITION OF WATER IN PIPES.

Friction loss in pounds pressure per square mch for each 100 feet of length in different size clean iron pipe, discharging given quantities of water per minute. G. A. ELLIS, C. E.

Gallons per Minute.	SIZE OF PIPES — INSIDE DIAMETER.											
	3-4 in.	1 in.	1 1-4 in.	1 1-2 in.	2 in.	2 1-2 in.	3 in.	4 in.	6 in.	8 in.	10 in.	12 in.
5	3.3	0.84	0.31	0.12	. .	. .	. .	. .	. .	. .	. .	. .
10	13.0	3.16	1.05	0.47	0.12	. .	. .	. .	. .	. .	. .	. .
15	28.7	6.98	2.38	0.97	. .	. .	. .	. .	. .	. .	. .	. .
20	50.4	12.3	4.07	1.66	0.42	. .	. .	. .	. .	. .	. .	. .
25	78.0	19.0	6.40	2.62	. .	0.21	0.10	. .	. .	. .	. .	. .
30	. .	27.5	9.15	3.75	0.91	. .	. .	. .	. .	. .	. .	. .
35	. .	37.0	12.4	5.05	. .	. .	. .	. .	. .	. .	. .	. .
40	. .	48.0	16.1	6.52	1.60	. .	. .	. .	. .	. .	. .	. .
45	. .	. .	20.2	8.15	. .	. .	. .	. .	. .	. .	. .	. .
50	. .	. .	24.9	10.0	2.44	0.81	0.35	0.09	. .	. .	. .	. .
75	. .	. .	56.1	22.4	5.32	1.80	0.74	. .	. .	. .	. .	. .
100	. .	. .	. .	39.0	9.46	3.20	1.31	0.33	0.05	. .	. .	. .
125	. .	. .	. .	. .	14.9	4.89	1.99	. .	. .	. .	. .	. .
150	. .	. .	. .	. .	21.2	7.0	2.85	0.69	0.10	. .	. .	. .
175	. .	. .	. .	. .	28.1	9.46	3.85	. .	. .	. .	. .	. .
200	. .	. .	. .	. .	37.5	12.47	5.02	1.22	0.17	. .	. .	. .
250	. .	. .	. .	. .	. .	19.66	7.76	1.89	0.26	0.07	0.03	0.01
300	. .	. .	. .	. .	. .	28.06	11.2	2.66	0.37	0.09	0.04	. .
350	. .	. .	. .	. .	. .	. .	15.2	3.65	0.50	0.12	0.05	0.02
400	. .	. .	. .	. .	. .	. .	19.5	4.73	0.65	0.16	0.06	. .

TABLE OF THE DISCHARGE OF PIPES.

WATER DELIVERED BY PIPES OF DIFFERENT LENGTHS UNDER VARIOUS HEADS.

	LENGTH . . . FEET.	30	40	50	60	70	80	90	100
Head in Feet.		Gals. per Minute.	Gals. per Minute.	Gals. per Minute.	Gals. per Minute.	Gals. per Minute.	Gals. per Minute.	Gals. per Minute.	Gals. per Minute.
10	1 inch Diameter . . .	18.80	16.55	14.96	13.75	12.79	12.01	10.66	10.14
20	1 " " . . .	27.13	23.41	21.15	19.44	18.09	16.99	16.07	15.27
30	1 " " . . .	33.23	29.25	26.43	23.81	22.16	20.81	19.68	18.71
40	1 " " . . .	38.37	33.78	30.52	28.06	26.11	24.51	22.73	21.60
10	1 1/4 " " . . .	32.65	28.85	26.13	24.06	22.41	21.06	19.93	18.96
20	1 1/4 " " . . .	47.10	41.62	36.95	34.02	31.69	29.78	28.18	26.82
30	1 1/4 " " . . .	57.68	50.97	46.16	42.50	39.59	36.48	34.52	32.84
40	1 1/4 " " . . .	66.60	58.86	53.30	49.07	45.71	42.96	40.65	37.92
10	1 1/2 " " . . .	51.16	45.36	41.16	37.96	35.39	33.29	31.52	30.01
20	1 1/2 " " . . .	73.79	65.43	59.38	53.69	50.06	47.08	44.58	42.45
30	1 1/2 " " . . .	90.37	80.13	72.73	67.06	62.55	58.83	55.70	52.00
40	1 1/2 " " . . .	104.36	92.53	83.98	77.44	72.21	67.93	64.32	61.24
10	2 " " . . .	104.57	91.50	83.46	77.10	72.06	67.89	64.37	61.35
20	2 " " . . .	147.90	131.95	120.25	111.19	103.92	96.01	91.03	86.76
30	2 " " . . .	181.14	161.60	147.27	136.19	127.26	119.91	113.70	108.30
40	2 " " . . .	209.16	186.60	170.06	157.25	146.93	138.46	131.29	125.11

PUMP DEPARTMENT—CONTINUED.

TABLE OF THE DISCHARGE OF PIPES—Continued.

1000-FOOT LENGTHS FOR ALL SIZES. DIAMETER IN INCHES.

	3	4	6	8		3	4	6	8
Head in Feet.	Gallons per Minute.	Gallons per Minute.	Gallons per Minute.	Gallons per Minute.	Head in Feet.	Gallons per Minute.	Gallons per Minute.	Gallons per Minute.	Gallons per Minute.
10	48.7	111.8	319.8	659.0	60	138.0	287.2	813.5	1683.0
20	75.6	158.1	452.3	972.0	70	149.0	310.2	878.6	1862.0
30	92.6	193.7	575.3	1190.0	80	159.0	331.7	939.4	1991.0
40	107.0	234.5	664.3	1373.0	90	169.1	351.8	1014.8	2112.0
50	126.0	262.2	742.7	1536.0	100	178.3	370.8	1070.0	2226.0

TABLE FOR CONVERTING FEET HEAD OF WATER INTO PRESSURE PER SQUARE INCH.

Feet Head.	Pounds per Sq. Inch.	Feet Head.	Pounds per Sq. Inch.	Feet Head.	Pounds per Sq. Inch.
1	.43	55	23.82	190	82.29
2	.87	60	25.99	200	86.62
3	1.30	65	28.15	225	97.45
4	1.73	70	30.32	250	108.27
5	2.17	75	32.48	275	119.10
6	2.60	80	34.65	300	129.93
7	3.03	85	36.81	325	140.75
8	3.46	90	38.98	350	151.58
9	3.90	95	41.14	375	162.41
10	4.33	100	43.31	400	173.24
15	6.50	110	47.64	500	216.55
20	8.66	120	51.97	600	259.85
25	10.83	130	56.30	700	303.16
30	12.99	140	60.63	800	346.47
35	15.16	150	64.96	900	389.78
40	17.32	160	69.29	1000	433.09
45	19.49	170	73.63	. . .	. . . .
50	21.65	180	77.96	. . .	. . . .

TABLE FOR CONVERTING PRESSURE PER SQUARE INCH INTO FEET HEAD OF WATER.

Pounds per Sq. Inch.	Feet Head.	Pounds per Sq. Inch.	Feet Head.	Pounds per Sq. Inch.	Feet Head.
1	2.31	55	126.99	190	438.90
2	4.62	60	138.54	200	461.78
3	6.93	65	150.08	225	519.51
4	9.24	70	161.63	250	577.24
5	11.54	75	173.17	275	643.06
6	13.85	80	184.72	300	692.69
7	16.16	85	196.26	325	750.41
8	18.47	90	207.81	350	808.13
9	20.78	95	219.35	375	865.89
10	23.09	100	230.90	400	922.58
15	34.63	110	253.98	500	1154.48
20	46.18	120	277.07	. . .	. . . .
25	57.72	130	300.16	. . .	. . . .
30	69.27	140	323.25	. . .	. . . .
35	80.81	150	346.34	. . .	. . . .
40	92.36	160	369.43	. . .	. . . .
45	103.90	170	392.52	. . .	. . . .
50	115.45	180	415.61	. . .	. . . .

PUMP DEPARTMENT — CONTINUED.

TABLE OF THEORETICAL HORSE-POWER REQUIRED TO RAISE WATER TO  
DIFFERENT HEIGHTS.

FEET .	5	10	15	20	25	30	35	40	45	50	60
Gals. per Minute.											
5	.006	.012	.019	.025	.031	.037	.044	.05	.06	.06	.07
10	.012	.025	.037	.050	.062	.075	.087	.10	.11	.12	.15
15	.019	.037	.056	.075	.094	.112	.131	.15	.17	.19	.22
20	.025	.050	.075	.100	.125	.150	.175	.20	.22	.25	.30
25	.031	.062	.093	.125	.156	.187	.219	.25	.28	.31	.37
30	.037	.075	.112	.150	.187	.225	.262	.30	.34	.37	.45
35	.043	.087	.131	.175	.219	.262	.306	.35	.39	.44	.52
40	.050	.100	.150	.200	.250	.300	.350	.40	.45	.50	.60
45	.056	.112	.168	.225	.281	.337	.394	.45	.51	.56	.67
50	.062	.125	.187	.250	.312	.375	.437	.50	.56	.62	.75
60	.075	.150	.225	.300	.375	.450	.525	.60	.67	.75	.90
75	.093	.187	.281	.375	.469	.562	.656	.75	.84	.94	1.12
90	.112	.225	.337	.450	.562	.675	.787	.90	1.01	1.12	1.35
100	.125	.250	.375	.500	.625	.750	.875	1.00	1.12	1.25	1.50
125	.156	.312	.469	.625	.781	.937	1.094	1.25	1.41	1.56	1.86
150	.187	.375	.562	.750	.937	1.125	1.312	1.50	1.69	1.87	2.25
175	.219	.437	.656	.875	1.093	1.312	1.531	1.75	1.97	2.19	2.62
200	.250	.500	.750	1.000	1.250	1.500	1.750	2.00	2.25	2.50	3.00
250	.312	.625	.937	1.250	1.562	1.875	2.187	2.50	2.81	3.12	3.75
300	.375	.750	1.125	1.500	1.875	2.250	2.625	3.00	3.37	3.75	4.50
350	.437	.875	1.312	1.750	2.187	2.625	3.062	3.50	3.94	4.37	5.25
400	.500	1.000	1.500	2.000	2.500	3.000	3.500	4.00	4.50	5.00	6.00
500	.625	1.250	1.875	2.500	3.125	3.750	4.375	5.00	5.62	6.25	7.50

FEET .	75	90	100	125	150	175	200	250	300	350	400
Gals. per Minute.											
5	.09	.11	.12	.16	.19	.22	.25	.31	.37	.44	.50
10	.19	.22	.25	.31	.37	.44	.50	.62	.75	.87	1.00
15	.28	.34	.37	.47	.56	.66	.75	.94	1.12	1.31	1.50
20	.37	.45	.50	.62	.75	.87	1.00	1.25	1.50	1.75	2.00
25	.47	.56	.62	.78	.94	1.09	1.25	1.56	1.87	2.19	2.50
30	.56	.67	.75	.94	1.12	1.31	1.50	1.87	2.25	2.62	3.00
35	.66	.79	.87	1.08	1.31	1.53	1.75	2.19	2.62	3.06	3.50
40	.75	.90	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.50	4.00
45	.84	1.01	1.12	1.41	1.69	1.97	2.25	2.81	3.37	3.94	4.50
50	.94	1.12	1.25	1.56	1.87	2.19	2.50	3.12	3.75	4.37	5.00
60	1.12	1.35	1.50	1.87	2.25	2.62	3.00	3.75	4.50	5.25	6.00
75	1.40	1.69	1.87	2.34	2.81	3.28	3.75	4.69	5.62	6.56	7.50
90	1.68	2.02	2.25	2.81	3.37	3.94	4.50	5.62	6.75	7.87	9.00
100	1.87	2.25	2.50	3.12	3.75	4.37	5.00	6.25	7.50	8.75	10.00
125	2.34	2.81	3.12	3.91	4.69	5.47	6.25	7.81	9.37	10.94	12.50
150	2.81	3.37	3.75	4.69	5.62	6.56	7.50	9.37	11.25	13.12	15.00
175	3.28	3.94	4.37	5.47	6.56	7.66	8.75	10.94	13.12	15.31	17.50
200	3.75	4.50	5.00	6.25	7.50	8.75	10.00	12.50	15.00	17.50	20.00
250	4.69	5.62	6.25	7.81	9.37	10.94	12.50	15.72	18.75	21.87	25.00
300	5.62	6.75	7.50	9.37	11.25	13.12	15.00	18.75	22.50	26.25	30.00
350	6.56	7.87	8.75	10.94	13.12	15.31	17.50	21.87	26.25	30.62	35.00
400	7.50	9.00	10.00	12.50	15.00	17.50	20.00	25.00	30.00	35.00	40.00
500	9.37	11.25	12.50	15.62	18.75	21.87	25.00	31.25	37.50	43.75	50.00

## GOULDS PUMPS.

VACUUM BASE AND CLOSE SPOUT PITCHER PUMP, WITH REVOLVING BRAKE, BOLT FASTENINGS.

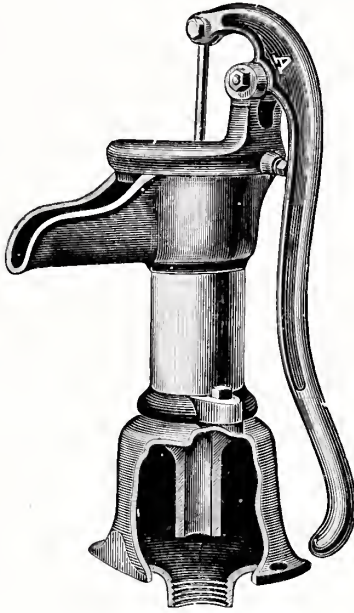


Fig. 1615.

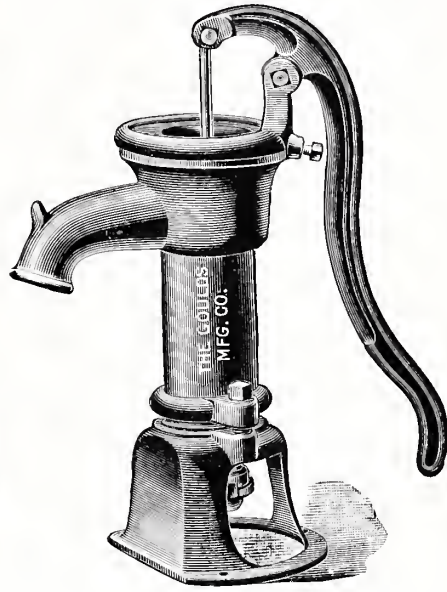


Fig. 1616.

Fig. 1615, shown above, is the same as our Fig. 1618 with revolving brake, bolt fastenings and cut-off base, and, in addition, it has an improvement in the base of the pump, which in many localities will be greatly appreciated. Oftentimes in driven wells, where the soil is so tight as to make an air-tight joint around the pipe when driven in the ground, and the supply of water is also limited, an ordinary pump will not work well, while with the Vacuum Base Pump all difficulty is obviated, for by creating a vacuum in the base, and permitting the water to form there a reservoir, a constant supply of water to the pump is obtained. For roily or gritty water these pumps are also well adapted. We fit them always for wrought iron pipe with the thread cut in the hub of the base, as shown in the cut.

Fig. 1616 shows our new style Pitcher Pump with a close spout. Thus constructed, the water is confined in the spout and cannot wash over. There is also a convenient place on the spout for hanging a pail or bucket.

These are made like our other Pitcher Pumps, with revolving brake, bolt fastenings and cut-off base.

	Size No.	Diameter Cylinder.	Suction Pipe.	Capacity per Stroke.	Weight.	Price, Fig. 1615.	Price, Fig. 1616.
Figs. 1615, 1616 . .	1	2½-inch.	1 -inch.	½ gallon.	31 lbs.	\$4.75	4.25
" 1615, 1616 . .	2	3 "	1½ "	¾ "	34 "	5.25	4.75
" 1615, 1616 . .	3	3½ "	1¾ "	1 ⅙ "	40 "	5.75	5.25

Please state in your orders whether you wish them with open or close tops, for we furnish them both ways.

Order by this Catalogue Figure Number, stating size wanted.



GOULDS PUMPS—CONTINUED.

REVOLVING TOP CISTERN AND PITCHER PUMP, WITH THROUGH BOLT FASTENINGS.

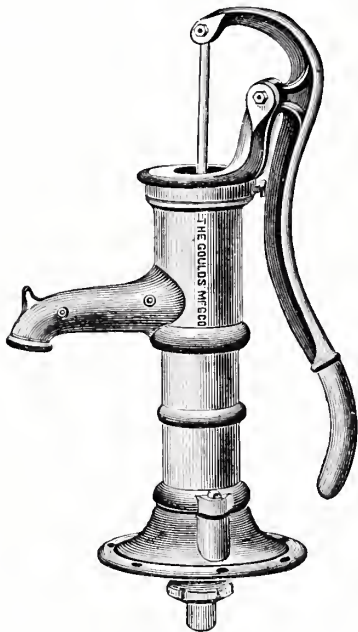


Fig. 1617.

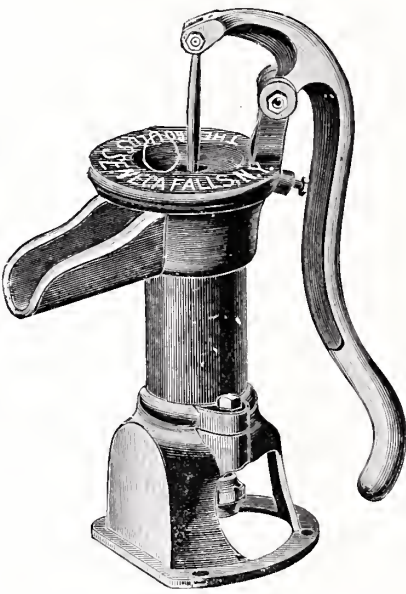


Fig. 1618.

The cut shows Fig. 1617, one of the leading staple Cistern Pumps, with broad bearing and high base. The cylinder and base are held together with two strong bolts with brass nut on top, with leather packing between, which have only to be unscrewed to give free access to the lower valve without disturbing the suction pipe in the least. A substantial hub or tail piece on the under side of the base has threads on it, for coupling on an iron nut with gas pipe threads cut in it for connecting wrought iron pipe, or can furnish lead pipe soldering nipple as desired.

In cold weather lift the lever until the lower valve is tripped, when the water runs out of the cylinder back into the cistern or well.

These pumps can be used in cisterns or wells, or any place where the water does not have to be lifted to exceed say twenty-five feet in perpendicular height, though horizontally the suction pipe can extend almost any length.

Fig. 1618 shows new style Pitcher Spout Pump with closed top. They are fitted up in the very best manner, with revolving standard or bearer, so made that by raising the lever the valves are tripped and the water let out of the pump.

These pumps are arranged to be used for either lead or wrought iron pipe, by a coupling nut fastened to the hub under the base, through which a brass soldering tube is introduced. Inside the nut are gas pipe threads, into which iron pipe can be screwed when this connection is desired. Can furnish Fig. 1618 with open top, similar to Fig. 1616, at same price.

	Size No.	Diam. Cyl. Inch.	Suc- tion. Inch.	Capac- ity per Stroke, Gal.	Iron. Price.	Brass Cyl. Price.	Brass. Price.		Size No.	Diam. Cyl. Inch.	Suc- tion. Inch.	Gal. per Stroke.	Price.	Brass Lined.
Fig. 1617.	0	2	1	$\frac{1}{16}$	\$3.50	5.50	7.75	Fig. 1618.	1	2 $\frac{1}{2}$	1	$\frac{1}{16}$	4.25	6.50
" 1617.	1	2 $\frac{1}{4}$	1	$\frac{1}{16}$	4.00	6.00	8.75	" 1618.	2	3	1 $\frac{1}{4}$	$\frac{1}{16}$	4.75	7.25
" 1617.	2	2 $\frac{1}{2}$	1 $\frac{1}{4}$	$\frac{1}{8}$	4.50	7.00	10.50	" 1618.	3	3 $\frac{1}{4}$	1 $\frac{1}{2}$	$\frac{1}{16}$	5.25	8.00
" 1617.	3	2 $\frac{3}{4}$	1 $\frac{1}{2}$	$\frac{1}{8}$	5.00	8.00	14.00	" 1618.	4	4	1 $\frac{3}{4}$	$\frac{1}{16}$	5.75	9.00
" 1617.	4	3	1 $\frac{3}{4}$	$\frac{1}{8}$	5.50	10.00	17.00	" 1618.	5	4 $\frac{1}{2}$	1 $\frac{3}{4}$	$\frac{1}{16}$	6.25	..
" 1617.	5	3 $\frac{1}{4}$	1 $\frac{3}{8}$	$\frac{1}{8}$	6.50	13.00	21.00	" 1618.	..	..	..	..	..	..
" 1617.	6	3 $\frac{1}{2}$	1 $\frac{3}{8}$	$\frac{1}{8}$	8.00	18.00	27.00	" 1618.	..	..	..	..	..	..
" 1617.	8	4	2	$\frac{1}{8}$	10.00	25.00	35.00	" 1618.	..	..	..	..	..	..

Fig. 1617 brass pumps have all parts brass, except the lever, bearer and base. We can furnish brass lower valves and metal packing to adapt Fig. 1617 Pumps for hot water.

Order by this Catalogue Figure Number, stating size wanted.

# UNION BOLT PITCHER PUMPS.

OPEN SPOUT, CLOSE TOP.

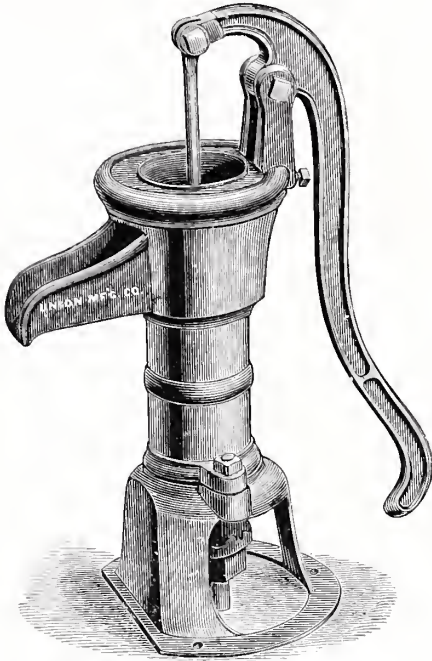


Fig. 1619.

OPEN SPOUT AND TOP.

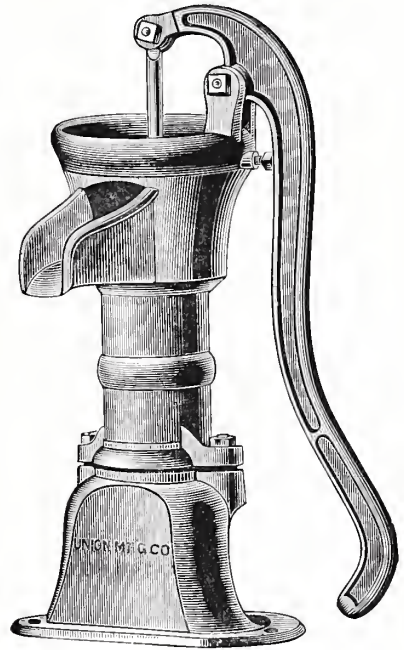


Fig. 1620.

All these Pump Cylinders are highly polished after being bored. The above cuts represent the Union Bolt Pitcher Spout Pump, being one of the most simple and effective Pumps in the market. They are perfect in workmanship, and, if necessary, can be easily repaired. They are especially adapted to Cisterns and Wells that require the water to be drawn less than twenty feet. Having a large bore, short cylinder, and therefore quick stroke, they will discharge more water, with the same power, than any other style of Pump.

The Valve Seat and Tube are of Brass. We can furnish special Pumps with Patent Valve Seats for Driven Wells. They are arranged with revolving brakes, and by raising the brake to its full height the water is let off to avoid freezing.

	Size No.	Size Bore.	Pipe Suitable For.	Price.
Figs. 1619, 1620. . . . .	1	2½-inch.	1 or 1½-inch.	\$4.25
" 1619, 1620. . . . .	2	3 "	1½ " 1½ "	4.75
" 1619, 1620. . . . .	3	3½ "	1½ " 1½ "	5.25
" 1619, 1620. . . . .	4	4 "	1½ " 1½ "	5.75

Fitted for Lead Pipe, for Iron Pipe, or with Union Coupling.  
Order by this Catalogue Figure Number, stating size wanted.

UNION BOLT PITCHER PUMPS.

CONTINUED.

CLOSE SPOUT AND TOP.

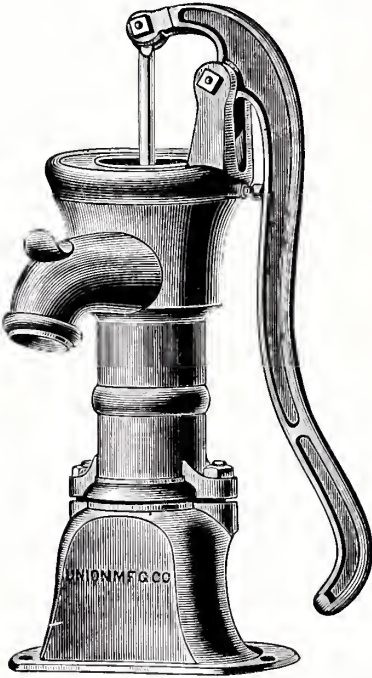


Fig. 1621.

CLOSE SPOUT, OPEN TOP.

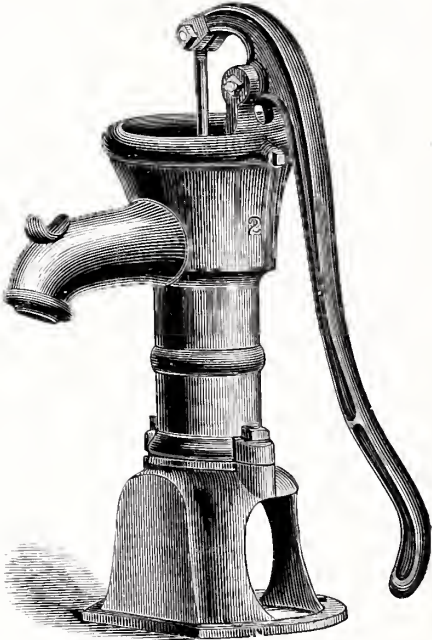


Fig. 1622.

Fig. 1621 represents the Union Bolt Close Top Pitcher Pump.  
These Pumps prevent all splashing when pumping rapidly, and prevents obstructions being thrown in either by accident or design. We can furnish them with Brass Valve Seat when desired, but always send with Iron Valve Seat, with Brass Ring inserted, unless otherwise ordered. They have all the improvements, and are adapted to all the uses of any pumps of this class.  
Fig. 1622 represents the Union Bolt Pitcher Top Pump.

	Size No.	Size Bore.	Pipe Suitable For.	Price.
Figs. 1621, 1622 . . . . .	1	2½-inch.	1 or 1½-inch.	\$4.25
" 1621, 1622 . . . . .	2	3 "	1½ or 1¾ "	4.75
" 1621, 1622 . . . . .	3	3½ "	1¾ or 1½ "	5.25
" 1621, 1622 . . . . .	4	4 "	1½ "	5.75

Fitted for Lead Pipe, for Iron Pipe, or with Union Coupling.  
Order by this Catalogue Figure Number, stating size wanted.



DOUGLAS PUMPS.

OPEN SPOUT AND CLOSE TOP.

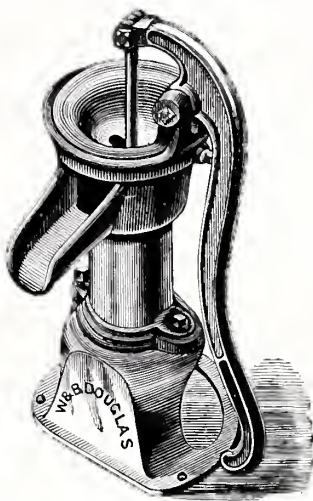


Fig. 1623.

CLOSE SPOUT AND TOP.

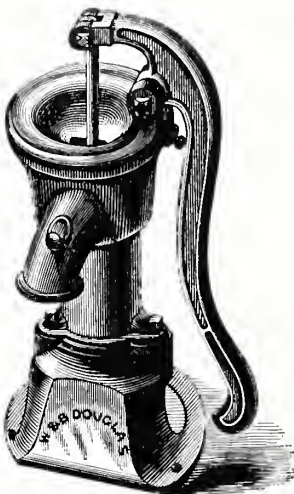


Fig. 1624.

The above are cuts of Douglas Patent Pitcher Top Pumps. These are a very simple and perfect Pump, all parts being readily seen and repaired by the most inexperienced hand. Particularly adapted for Cisterns and Shallow Wells. For any height under say twenty feet, they will raise a greater quantity of water in a given length of time, with the same power applied, than any other style of Pump in use.

It is constructed with a Revolving Top, so that the Brake may be changed round to either side, to adapt for right or left-hand use. It is arranged to let back the water to avoid freezing. The lower Valve Seat is of Brass.

These Pumps are arranged with suitable couplings for either Iron or Lead Pipe, and are extensively used on the Driven Well.

	Size No.	Size Bore.	Size Stroke.	Pipe Suitable For.	Price.
Figs. 1623, 1624 . . . . .	1	2½-inch.	4½-inch.	¾ or 1-inch.	\$4.25
" 1623, 1624 . . . . .	2	3 " "	4½ " "	1 " 1¼ "	4.75
" 1623, 1624 . . . . .	3	3½ " "	4 " "	1¼ " 1½ "	5.25
" 1623, 1624 . . . . .	4	4 " "	4½ " "	1½ " 1¾ "	5.75

Order by this Catalogue Figure Number, stating size wanted.



DOUGLAS PUMPS—CONTINUED.

OPEN SPOUT AND TOP.

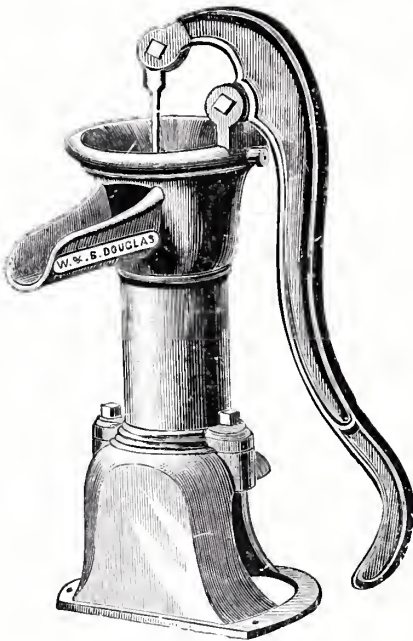


Fig. 1625.

CLOSED SPOUT, OPEN TOP.

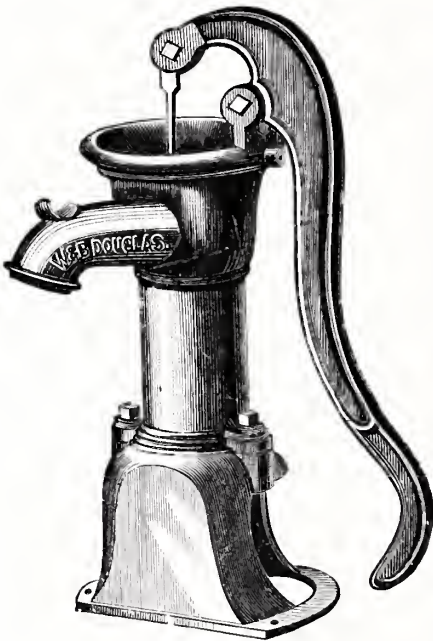


Fig. 1626.

The above cuts represent the Douglas Bolt-Fastened Pitcher Spout Pumps. These are a very simple and perfect Pump, all parts being readily got at by the most inexperienced hand. Particularly adapted for Cisterns and Shallow Wells. For any height under say 20 feet, they will raise a greater quantity of water in a given length of time, with the same power applied, than any other style of pump in use. It has the Revolving Top neatly arranged on the upper end of cylinder, outside of the water passage, and cannot be affected by rust. It is arranged to let the water back to avoid freezing. The lower Valve Seat is of Brass, arranged with suitable couplings for either Lead or Iron Pipe. These pumps are very popular for use on the Driven Well.

SIZE . . . . . NUMBER.	1	2	3	4	5	6
Diameter Cylinder. . . . . Inches.	2½	3	3½	4	4½	5
Stroke . . . . . "	4½	4½	4	4½	4½	4½
Size Suction . . . . . "	1	1½	1½ or 1½	1½ or 2	2 or 2½	2½ or 3
Fig. 1625 . . . . . Each.	\$4.25	4.75	5.25	5.75	6.25	10.00
" 1626 . . . . . "	4.25	4.75	5.25	5.75	. . .	. . .

Order by this Catalogue Figure Number, stating size wanted.

## DOUGLAS PUMPS—CONTINUED.

IMPROVED SELF-PRIMING PITCHER PUMP.

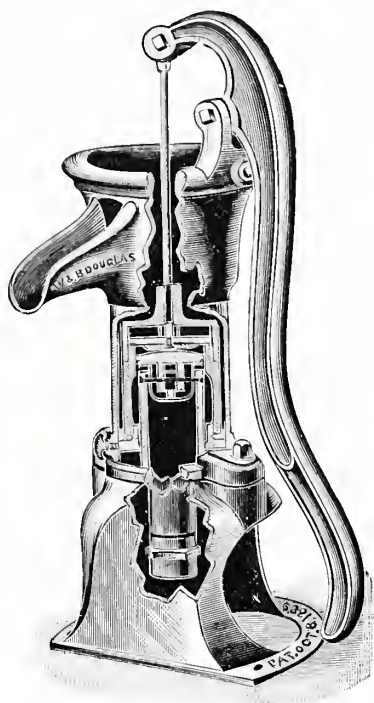


Fig. 1627.

PORCELAIN-LINED PUMP.

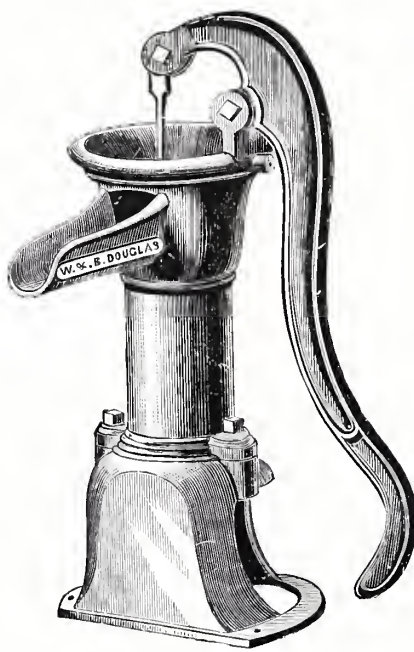


Fig. 1628.

Fig. 1627 shows an entirely new invention in the Pitcher Pump line.

The construction renders it absolutely positive in its action at all times, and obviates any trouble of sand getting under the valve. The lower valve and piston interlock at each motion of the brake, as will be clearly understood by a close examination of the illustration.

It is arranged with drain plug, to let off the water to avoid freezing, by pushing down the handle as far as it will go and removing the plug.

For driven wells this pump is very desirable, as the patent valves are claimed to remedy any trouble from sand, and is at all times self-priming.

This skeleton cut shows the interior construction. The exterior, as sent to market, is same as Fig. 1618, Pitcher Pump.

Fig. 1628 shows Porcelain-Lined Pitcher Pump. Pure and wholesome as glass; of the greatest durability; and very smooth and easy working.

Being lined throughout with a porcelain enamel, it cannot oxidize or color the water.

They are fitted for either Iron or Lead Pipe.

We can furnish these pumps with concave covered top, as shown in Fig. 1616, page 519, when so ordered.

	Size No.	Bore.	Stroke.	Pipe.	Price.
Fig. 1627 . . . . .	2	3 -inch.	4½ -inch.	1½ -inch.	\$6.75
" 1628 . . . . .	1	2½ "	4½ "	¾ or 1 "	5.00
" 1628 . . . . .	2	3 "	4½ "	1 " 1½ "	5.50
" 1628 . . . . .	3	3½ "	4 "	1½ " 1¾ "	6.25
" 1628 . . . . .	4	4 "	4½ "	1¾ " 1¾ "	7.00
" 1628 . . . . .	6	5 "	4½ "	2½ " 3 "	12.00

Order by this Catalogue Figure Number, stating size wanted.

DOUGLAS PUMPS — CONTINUED.

BOLT-FASTENED REVOLVING STAND PUMP.



Fig. 1629.

All these Pumps are furnished with Iron Couplings and Brass Thread Tube adapted to either Iron or Lead Pipe.

	Size No.	Size Bore.	Size Stroke.	Pipe Suitable For.	Price.
Fig. 1629. . . . .	0	2 -inch.	3 $\frac{3}{4}$ -inch.	$\frac{3}{4}$ -inch.	\$3.50
" 1629. . . . .	1	2 $\frac{1}{2}$ "	5 "	$\frac{8}{4}$ or 1 "	4.00
" 1629. . . . .	2	2 $\frac{3}{4}$ "	5 "	1 or 1 $\frac{1}{4}$ "	4.50
" 1629. . . . .	3	2 $\frac{3}{4}$ "	6 $\frac{3}{4}$ "	1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ "	5.00
" 1629. . . . .	4	3 "	6 $\frac{3}{4}$ "	1 $\frac{1}{2}$ or 1 $\frac{3}{4}$ "	5.50
" 1629. . . . .	5	3 $\frac{1}{4}$ "	7 $\frac{1}{4}$ "	1 $\frac{3}{4}$ or 2 "	6.50
" 1629. . . . .	6	3 $\frac{1}{2}$ "	7 $\frac{1}{4}$ "	2 or 2 $\frac{1}{4}$ "	8.00
" 1629. . . . .	8	4 "	7 $\frac{1}{4}$ "	2 or 2 $\frac{1}{2}$ "	10.00
" 1629. . . . .	10	4 $\frac{1}{2}$ "	7 $\frac{1}{2}$ "	2 $\frac{1}{2}$ or 3 "	12.00

Order by this Catalogue Figure Number, stating size wanted.

UNION PUMPS.

PITCHER SET LENGTH.

FORCE PUMP ON BASE.

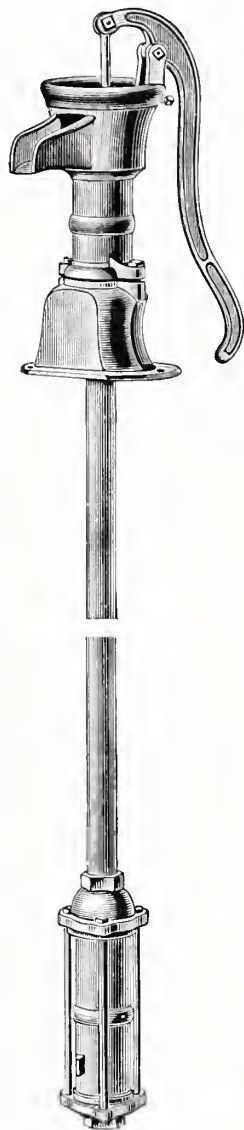


Fig. 1630.

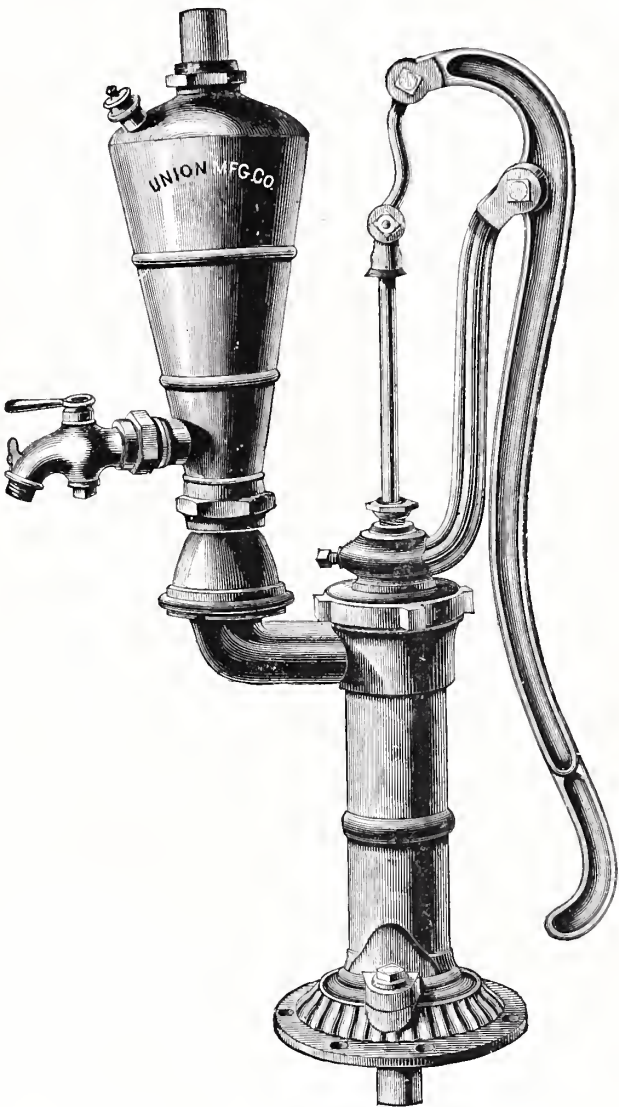


Fig. 1631.

Fig.	Size No.	Diam.	Suction.	Price.	Fig.	Size No.	Diam.	Suction.	Iron.	Brass Cylinder.	Brass.
1630 .	1	2½	1½	\$6.75	1631 .	0	2	¾	\$10.50	13.00	20.00
1630 .	2	3	1½	7.75	1631 .	1	2½	1	11.25	14.00	25.00
1630 .	3	3½	1½	8.75	1631 .	2	2½	1½	12.50	15.00	28.50
1630 .	4	4	2	9.50	1631 .	3	2½	1½	13.50	18.00	31.00
					1631 .	4	3	1½	14.50	20.00	35.00
					1631 .	5	3½	1½ or 1½	16.50	25.00	38.00
					1631 .	6	3½	1½ " 2	18.00	30.00	41.00

Can furnish with Brass Body or  
all Brass Cylinders.

Fig. 1630 has 3-foot set length and all Iron Cylinder.  
Order by this Catalogue Figure Number, stating size wanted.



## UNION PUMPS—CONTINUED.

## UNION BOLT CISTERN PUMP.

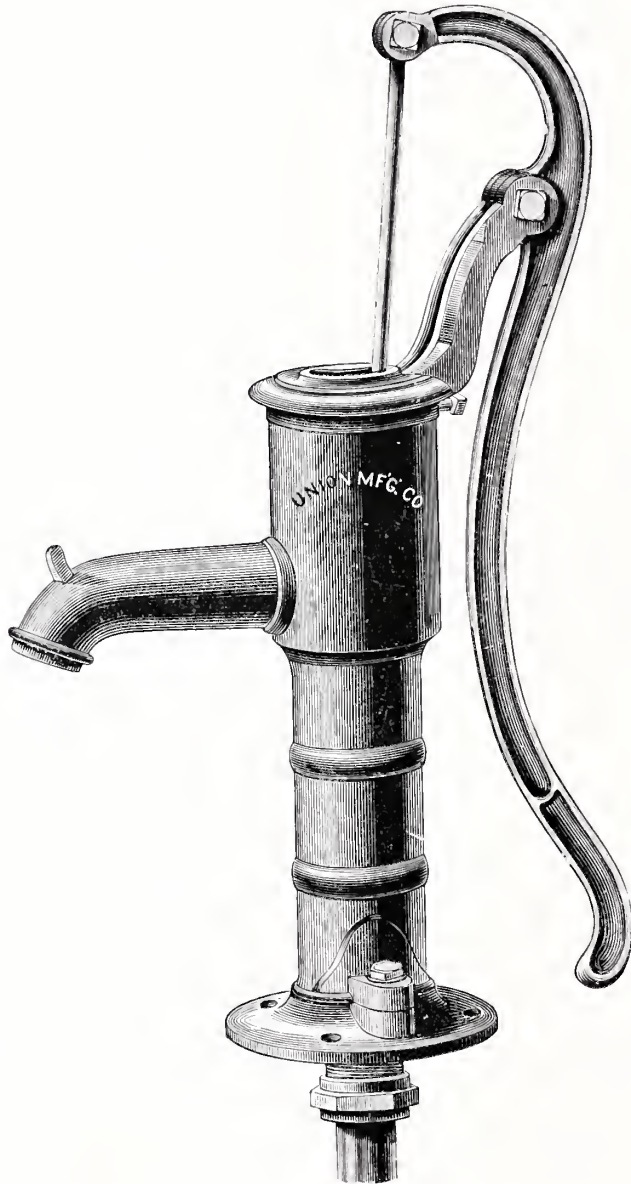


Fig. 1632.

	Size No.	Diam. Cylinder, Inches.	Suction Pipe.	Capacity, Gallons.	Weight.	Price.
Fig. 1632 . . . . .	0	2	$\frac{3}{4}$ or 1	6	15	\$3.50
" 1632 . . . . .	1	$2\frac{1}{4}$	$\frac{3}{4}$ or 1	8	18	4.00
" 1632 . . . . .	2	$2\frac{1}{2}$	1 or $1\frac{1}{4}$	12	22	4.50
" 1632 . . . . .	3	$2\frac{3}{4}$	$1\frac{1}{4}$ or $1\frac{1}{2}$	15	25	5.00
" 1632 . . . . .	4	3	$1\frac{1}{2}$	22	33	5.50
" 1632 . . . . .	5	$3\frac{1}{4}$	$1\frac{1}{2}$ or 2	26	43	6.50
" 1632 . . . . .	6	$3\frac{1}{2}$	2	30	52	8.00

Fitted for Lead Pipe, for Iron Pipe, or with Union Coupling.  
Order by this Catalogue Figure Number, stating size wanted.

UNION PUMPS — CONTINUED.

BRASS [CYLINDER CISTERN PUMP.      BRASS CYLINDER PITCHER PUMP.

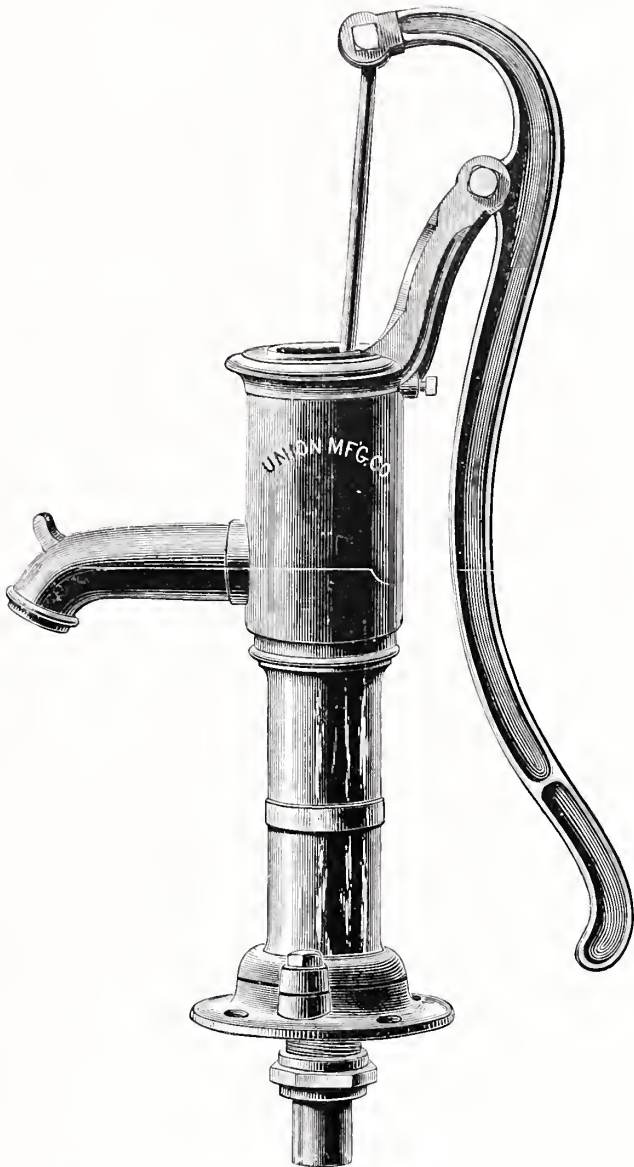


Fig. 1633.

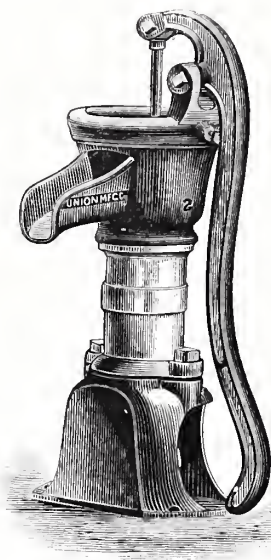


Fig. 1634.

					Size No.	Diam.	Size Suction.	Price.	
Fig. 1633	.	.	0	2	$\frac{3}{4}$	\$5.25			
" 1633	.	.	1	$2\frac{1}{4}$	1	6.00			
" 1633	.	.	2	$2\frac{1}{2}$	$1\frac{1}{4}$	7.00			
" 1633	.	.	3	$2\frac{3}{4}$	$1\frac{1}{4}$	8.00			
" 1633	.	.	4	3	$1\frac{1}{4}$ or $1\frac{1}{2}$	10.00			
" 1633	.	.	5	$3\frac{1}{4}$	$1\frac{1}{2}$	13.00			
" 1633	.	.	6	$3\frac{1}{2}$	$1\frac{1}{2}$ " 2	18.00			
					Size No.	Diam.	Size Suction.	Price.	
Fig. 1634	.	.	1	$2\frac{1}{2}$	1	\$7.00			
" 1634	.	.	2	3	$1\frac{1}{4}$	10.00			
" 1634	.	.	3	$3\frac{1}{2}$	$1\frac{1}{4}$ or $1\frac{1}{2}$	12.00			
" 1634	.	.	4	4	$1\frac{1}{2}$ " 2	14.00			

Can furnish Fig. 1633 all Brass below spout if desired.

Order by this Catalogue Figure Number, stating size wanted.

# PUMP REPAIRS OF ALL KINDS.

## REPAIRS.

No one thing connected with the sale and use of Pumps is so annoying as the delay in securing repairs. We have on hand a full stock of all the working parts of the most common pumps of the Goulds, Union and Douglas makes, as well as Wood and Copper Pumps of all sizes. We can also furnish on short notice any part of any pump now made, as well as many which are out of date. We make a specialty of this branch of our business, and solicit your trade.

## RULES FOR ORDERING.

It is absolutely necessary in ordering repairs that we should be advised of the following: Manufacturer's name, size of cylinder, name of part wanted, number of pump, and any other marks on same. When possible to do so, always send old castings, with name of manufacturer, unless you can fully describe the repairs wanted.

## SECTIONAL VIEW OF CISTERN AND PITCHER PUMP

For Facilitating Ordering Repairs for Same.

CISTERN PUMP.

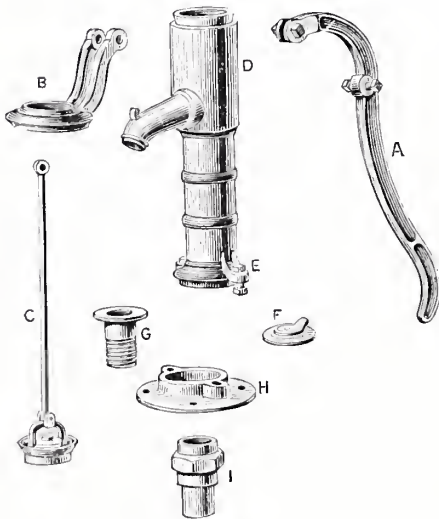


Fig. 1635.

PITCHER PUMP.

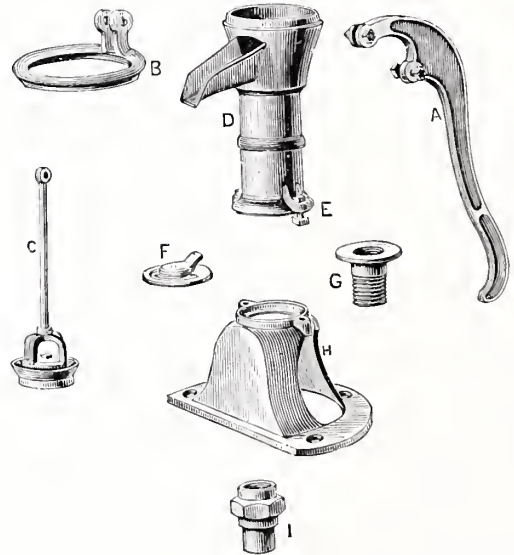


Fig. 1636.

## DESCRIPTION OF PARTS — Figs. 1635, 1636.

- A — Brake.
- B — Top or Fulcrum.
- C — Piston and Rod.
- D — Cylinder.
- E — Base Bolts.
- F — Valve (complete).
- G — Brass Valve Seat.
- H — Base or Flange.
- I — Coupling and Solder Nipple or Tube.

- A — Brake.
- B — Top or Fulcrum.
- C — Piston and Rod.
- D — Cylinder.
- E — Base Bolts.
- F — Valve (complete).
- G — Brass Valve Seat.
- H — Base or Flange.
- I — Coupling and Solder Nipple or Tube.

When ordering parts of these pumps, it will prevent mistakes if the terms we give are used. For corresponding parts of other pumps the same terms can be used, and will be understood by us. Prices on repairs for any pump quoted on application.

Order by this Catalogue Figure Number, stating size wanted.

# REPAIRS FOR PITCHER AND CISTERN PUMPS.

NO. OF PUMP AS PER LISTS . . . . .	0	1	2	3	4	5	6	8
Handles, Cistern . . . . .	\$0.45	.50	.55	.70	.85	1.25	1.50	2.00
“ Pitcher . . . . .	. . .	.60	.60	.70	.85	1.25	1.50	. . .
Tops or Fulcrums, Cistern . . . . .	.50	.55	.60	.80	.90	1.40	1.60	1.80
“ “ Pitcher, open . . . . .	. . .	.40	.50	.60	.65	.80	1.00	. . .
“ “ “ closed . . . . .	. . .	.60	.70	.90	1.00	. . .	. . .	. . .
Cylinders, Iron, Cistern . . . . .	1.45	1.60	1.87	2.25	2.62	3.00	3.75	5.00
“ “ Pitcher . . . . .	. . .	1.50	1.87	2.25	2.62	3.00	3.75	. . .
Bases, Cistern . . . . .	.75	.75	.75	.85	1.00	1.00	1.25	1.75
“ Pitcher . . . . .	. . .	1.00	1.10	1.25	1.50	1.75	2.00	. . .
Brass Valve Seats, Cistern . . . . .	.75	.75	.75	.85	.95	1.05	1.20	1.50
“ “ Pitcher . . . . .	. . .	.75	.95	1.20	1.50	1.75	2.50	. . .
Plungers only, Cistern . . . . .	.60	.60	.75	.90	1.00	1.20	1.50	1.75
“ Pitcher . . . . .	. . .	.60	.75	.90	1.00	1.20	1.50	1.75
Piston or Plunger Rod . . . . .	.15	.15	.15	.22	.35	.35	.40	.40
Plunger with Rod, Cistern . . . . .	.75	.75	.90	1.12	1.35	1.55	1.90	2.15
“ “ Pitcher . . . . .	.75	.75	.90	1.12	1.35	1.55	1.90	2.15
Poppet Valves, Cistern . . . . .	.12½	.12½	.16	.20	.25	.30	.38	. . .
“ Pitcher . . . . .	. . .	.12½	.12½	.15	.18	. . .	. . .	. . .
Valve Weights and Screws . . . . .	.15	.15	.15	.15	.20	.20	.20	. . .
Bolts, Handle . . . . .	.08	.08	.08	.08	.08	.08	. . .	. . .
“ Plunger . . . . .	.08	.08	.08	.08	.08	.08	. . .	. . .
“ Base . . . . .	.08	.08	.08	.08	.08	.08	. . .	. . .
Leathers, each . . . . .	.11	.11	.11	.11	.15	.15	.15	. . .
Lead Pipe Connections . . . . .	.63	.67	.54	.57	.62	.75	. . .	. . .
Iron “ “ . . . . .	.35	.35	.35	.45	.45	.60	. . .	. . .

## IMPROVED COPPER FORCE PUMP.

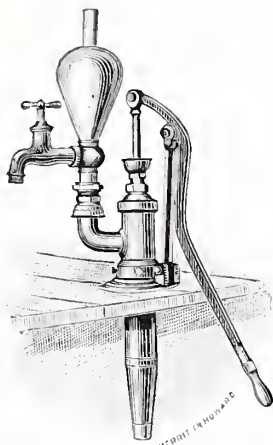


Fig. 1637.

The Pump shown by this cut is one of the best for indoor use of its class. It is certainly one of the most desirable of the Copper Pump Pattern, being very symmetrical in design, nicely polished and easily operated. As the cut shows, the leverage is ample for the work intended, and the bibb or faucet is convenient for attaching hose or for closing the discharge when forcing water to tank in upper story.

When Nickel Plated this Pump is a thing of beauty. We can furnish them in following sizes :

Fig. 1637. No. 1, 2½ inch . . . . .	\$17.00
“ 1637. “ 2, 2¾ “ . . . . .	19.00
“ 1637. “ 3, 3 “ . . . . .	22.00
Extra length per foot, No. 1, 2½ inches . . . . .	1.50
“ “ “ “ 2, 2¾ “ . . . . .	1.50
“ “ “ “ 3, 3 “ . . . . .	1.50

If fitted for Iron Pipe, 1 or 1¼-inch, add 62 cents net, to List.

Order by this Catalogue Figure Number, stating size wanted.



# SPOONER PATENT COPPER PUMPS.

WITH BRASS BOXES.

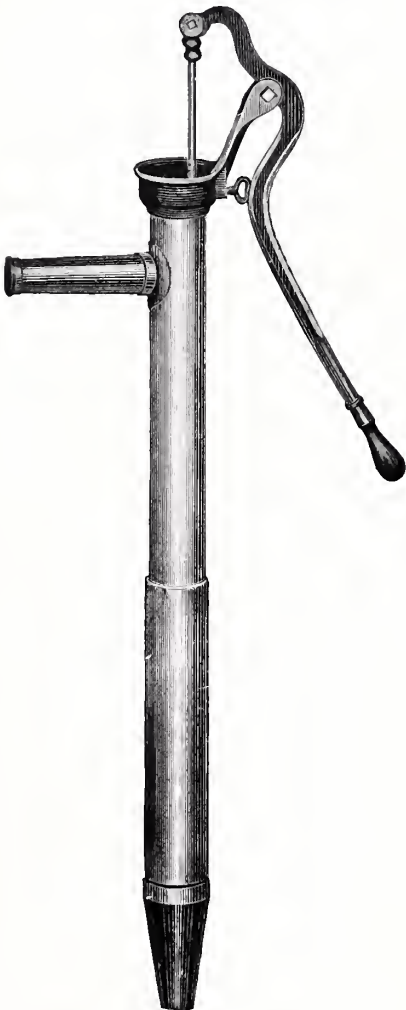


Fig. 1638.

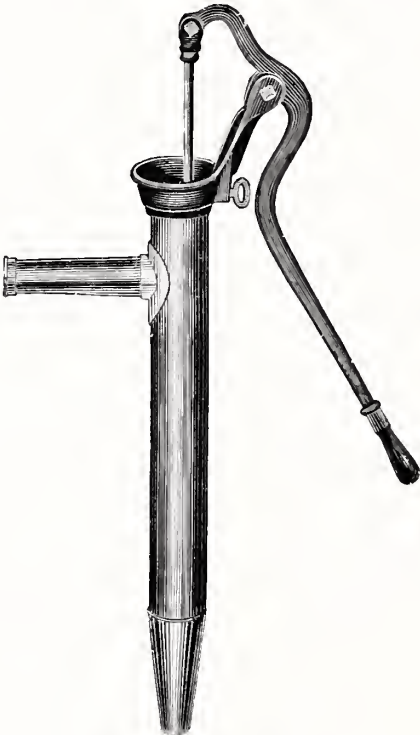


Fig. 1639.

The peculiar feature of this Pump is in the Patent Brass Box, Figs. 1647 and 1649, with which each Pump is fitted. It is simple, not liable to get out of order, easily repaired, and commends itself to all dealers in this line of goods.

SIZE . . . . .	NUMBER.	1	2	3
Size Bore . . . . . Inches.		2½	2¾	3
Fig. 1638 . . . . .		\$8.25	8.75	9.25
“ 1639 . . . . .		6.12	6.50	6.88
Additional Length, per foot. . . . .		1.50	1.50	1.50
Fitted with Brass Plunger Rod, add. . . . .		.50	.50	.50

Order by this Catalogue Figure Number, stating size wanted.

UNION PATENT COPPER PUMPS.

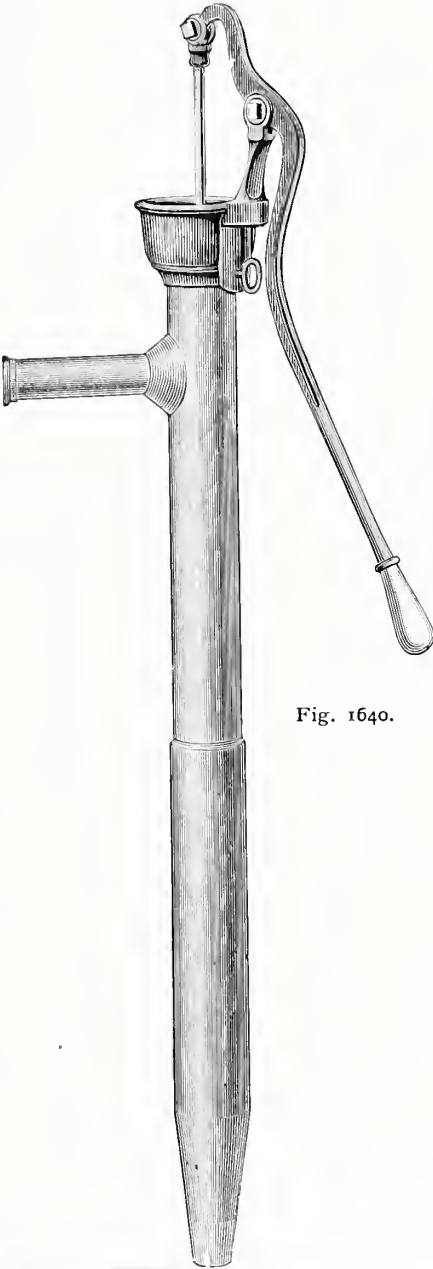


Fig. 1640.

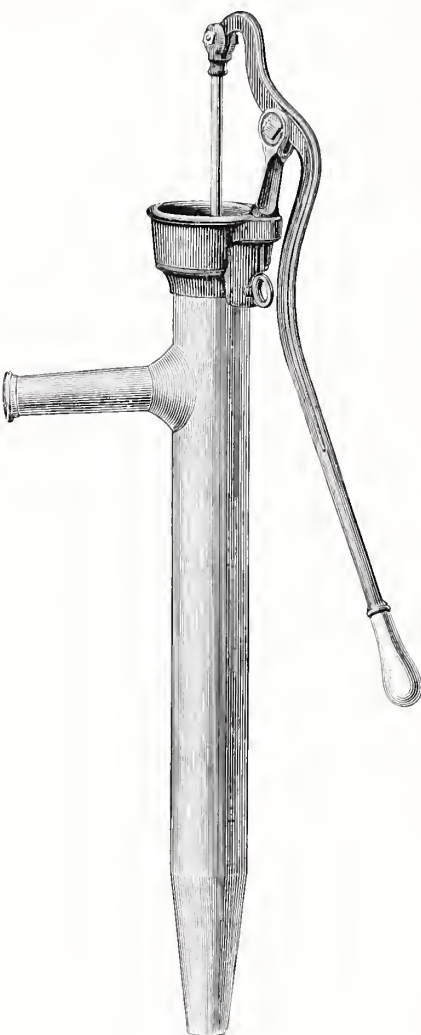


Fig. 1641.

The illustrations on this page show the leading styles of Copper Pumps, of which we keep an extensive stock, as well as repairs for same. These Pumps are little known outside of New England, but in this section of the country they are, and have been for many years, very popular, being efficient and very durable. Fig. 1640 shows an Air Chamber Extension, and is recommended for all places where the perpendicular suction exceeds 20 feet.

SIZE. . . . .	NUMBER.	1	2	3
Size Bore . . . . . Inches.		2½	2¾	3
Fig. 1640. . . . .		\$8.25	8.75	9.25
“ 1641. . . . .		6.12	6.50	6.88
Additional Length, per foot . . . . .		1.27	1.35	1.42
If fitted for Iron Pipe, add. . . . .		.62	.62	.62
Fitted with Brass Plunger Rod, add . . . . .		.50	.50	.50

Order by this Catalogue Figure Number, stating size wanted.

# EXTENSION CYLINDERS FOR COPPER PUMPS.

FOR IRON OR COPPER SET LENGTHS.

AIR CHAMBER CYLINDER.      WORKING CYLINDER.      MANNER OF LENGTHENING PUMPS.



Fig. 1642.



Fig. 1643.



Fig. 1644.

Fig. 1643 represents an Extension Cylinder for use with Iron Pipe where it is desirable to use a longer Pump than Fig. 1641. The Air Chamber Extension Cylinder is used for the same purpose and has the same advantage over the shorter one, as the Air Chamber Pump Fig. 1640 has over Fig. 1641. Can furnish these Cylinders fitted for Iron Suction Pipe when desired.

SIZE . . . . .	NUMBER.	1	2	3
Size Bore . . . . .	Inches.	2½	2¾	3
Fig. 1642 . . . . .		\$8.00	9.00	10.00
“ 1643 . . . . .		5.12	5.80	5.88
“ 1644 Extra tubing . . . . .	Per foot.	1.50	1.50	1.50

If fitted for 1½-inch Iron Suction Pipe, add 62 cents to List. ¾-inch Galvanized Steel Rod for Set Lengths, 6 cents per foot. ½-inch Brass Rod for Set Lengths, 35 cents per foot.

Order by this Catalogue Figure Number, stating size wanted.

COPPER PUMP ATTACHMENTS.

UNION, UPPER BOX.



Fig. 1645.

No. 1, 2 or 3 . . . Each. \$0.60  
" 4 or 5 . . . . . " 1.00

IRON PIPE COUPLING.



Fig. 1646.

1 or 1½-inch . . . Each. \$0.62

SPOONER, UPPER BOX.



Fig. 1647.

Brass Upper Box . . . \$1.00  
Composition Box . . . .60

UNION, LOWER BOX.



Fig. 1648.

No. 1, 2 or 3 . . . Each. \$0.60  
" 4 or 5 . . . . . " 1.00

SPOONER, LOWER BOX.



Fig. 1649.

Brass Lower Box . . \$1.50  
Composition Box . . .60

LOWER CLASP.



Fig. 1650.

No. 1, 2 or 3 . . . Each. \$0.15

FLANGE CLASP.

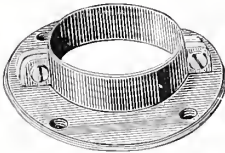


Fig. 1651.

No. 1, 2 or 3 . . Each. \$0.30

UPPER CLASP.

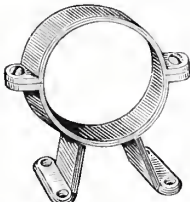


Fig. 1652.

No. 1, 2 or 3 . . . . . Each. \$0.25

UNION COPPER PUMP REPAIRS.

Pump Tops . . . . .	Each. \$0.62	Iron Top Standards . . . . .	Per dozen. \$2.00
" Brakes . . . . .	" .62	Copper Top Standards . . . . .	" 3.00
" Rods, iron . . . . .	" .25	Lower Valves . . . . .	" 2.00
" Rods, brass . . . . .	" .50	Upper Valves . . . . .	" 1.00
Flange Couplings . . . . .	" 1.50	Brake Bolts . . . . .	" .36
Band Leathers . . . . .	Per dozen. .75	Piston " . . . . .	" .36
Valve " . . . . .	" .36	Thumb Screws . . . . .	" .36
Rings . . . . .	" 1.20	Piston Heads . . . . .	" 1.20

SPOONER COPPER PUMP REPAIRS.

Pump Tops . . . . .	Each. \$0.75	Lower Valves . . . . .	Per dozen. \$2.25
" Brakes . . . . .	" .75	Upper " . . . . .	" 1.20
" Rods, iron . . . . .	" .25	Brake Bolts . . . . .	" 1.20
" " brass . . . . .	" .50	Piston " . . . . .	" 1.20
Flange Couplings . . . . .	" 2.00	Thumb Screws . . . . .	" .60
Valve Leathers . . . . .	Per dozen. 1.20	Piston Heads . . . . .	" 1.50
Rings . . . . .	" 1.20	Seamless Cups . . . . .	" 2.00
Seamless Bands . . . . .	" 2.00		

Order by this Catalogue Figure Number, stating size wanted.



IMPROVED WOOD PUMPS.



Fig. 1653.

PLAIN OR PORCELAIN-LINED.

Fig. 1653. The annexed cut represents our Improved Wood Pumps, which are made of the best material, and finished in the most workmanlike manner, with inside cylinders.

*Inside Screwed Cylinders.* Never purchase a pump without the inside screwed cylinder, as shown in the cut. It is the greatest improvement in wood pumps for many years. All of our pumps have close bracket, patent loose collar spout, and the best and most expensive fittings throughout.

Size of pumps recommended for various depths of wells :

20 ft. wells and under, 6 ft. long, porcelain cylinder.
25 ft. " 7 ft. long, porcelain cylinder.
28 ft. " 8 ft. " " "
30 ft. " 10 ft. " " "
32 ft. " 12 ft. " " "

SIZES AND PRICES — Revised Dec. 8, 1892.

Style of Pump.	CYLINDERS.		DIMENSIONS OF STOCK.		Price.
	Lining.	Bore.	Size Square.	Length.	
No. 0 Stock Pumps . . . . . Fig. 1653 . . . . .	Porcelain	4-inch	7 x 7 inches	6 feet	\$7.80
	"	4 "	7 x 7 "	7 "	8.50
	"	4 "	7 x 7 "	8 "	9.10
	"	4 "	7 x 7 "	10 "	10.30
	No Lining	4 "	7 x 7 "	6 "	6.20
	"	4 "	7 x 7 "	7 "	6.90
No. 00 Stock Pumps . . . . . Fig. 1653 . . . . .	"	4 "	7 x 7 "	8 "	7.50
	Porcelain	5-inch	8 x 8 inches	7 feet	\$10.50
	"	5 "	8 x 8 "	8 "	11.50
	No Lining	5 "	8 x 8 "	7 "	8.50
	"	5 "	8 x 8 "	8 "	9.50
No. 1 Pumps . . . . . Fig. 1653 . . . . .	Porcelain	3 1/2-inch	6 x 6 inches	6 feet	\$6.50
	"	3 1/2 "	6 x 6 "	7 "	7.00
	"	3 1/2 "	6 x 6 "	8 "	7.50
	"	3 1/2 "	6 x 6 "	10 "	8.50
	"	3 1/2 "	6 x 6 "	12 "	9.50
	No Lining	3 1/2 "	6 x 6 "	6 "	5.00
	"	3 1/2 "	6 x 6 "	7 "	5.50
	"	3 1/2 "	6 x 6 "	8 "	6.00
	"	3 1/2 "	6 x 6 "	10 "	7.00
No. 1 Pumps for Driven Wells . . . . Fig. 1653 . . . . .	Iron	3 1/2-inch	6 x 6 inches	6 feet	\$6.75
	"	3 1/2 "	6 x 6 "	7 "	7.25
	"	3 1/2 "	6 x 6 "	8 "	7.75
	"	3 1/2 "	6 x 6 "	10 "	8.75

Pumps for Driven Wells constantly on hand fitted for 1 1/4-inch Pipe. We always fill orders with No. 1 Pumps unless ordered to the contrary.

Order by this Catalogue Figure Number, stating size wanted.

# WOOD PUMP ATTACHMENTS, EXTRAS.

PATENT LOOSE COLLAR IRON SPOUT. LEATHER BUCKET. MALLEABLE HANDLE LINK.

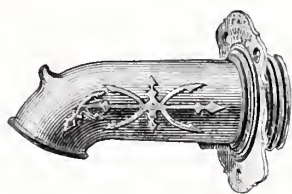


Fig. 1654.

COMMON IRON SPOUT.



Fig. 1655.

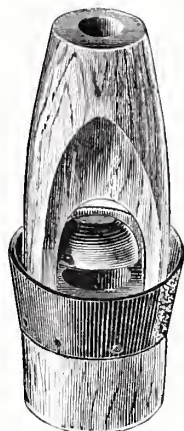


Fig. 1656.



Fig. 1657.

CHECK VALVE.



Fig. 1658.

## PIPE AND COUPLINGS.

No. 00, Pipe, 5 x 5, Tested . . .	Per foot.	\$0.30
No. 1, " 4 x 4, " . . .	"	.15
Extension Pipe, 6 x 6 . . . . .		.35
Couplings, with Bands for No. 1 Pipe . . .		.40

Couplings, with Bands for No. 00 Pipe . .	\$0.60
Pat. Cyl. for Driven Wells, Porcelain-lined	2.75
Patent Iron Cylinders for Driven Wells .	2.25
Porcelain Cylinders, in Blocks 2 feet long	2.60

## EXTRAS.

Fig. 1654. Iron Spouts, Patent Loose Col-	
lar . . . . .	Each. \$0.50
" 1655. Iron Spouts . . . . .	" .30
" 1656. Leather Plungers, 5 in. . . . .	1.25
" 1656. " " 4 " " . . . . .	1.00
" 1656. " " 3½ " " . . . . .	.80
" 1656. " " 3 " " . . . . .	.65
" 1656. Plunger Leathers . Per dozen.	3.50
" 1657. Handle Links or Knuckles, each	.25
" 1658. Check Valves . . Per dozen.	1.50

Handles, any size . . . . .	Each. .30
Wood Spouts . . . . .	" .15
Wood Spout Braces . . . . .	" .15
Bands . . . . .	" .10
Brackets, open . . . . .	" .40
" closed . . . . .	" .50
Plunger Woods . . . . .	Per dozen. 3.50
Iron Connections for Driven Wells, 1½ and	
1½-inch Pipe . . . . .	Each. .75

## "DAISY" RUBBER BUCKET CHAIN PUMPS.

This cut represents our Rubber Bucket Chain Pumps, made with three Panels, Flaring Base, and should not be compared with the cheap ones that are simply made to sell. They are constructed in the best manner, and of excellent material.

### CHAIN PUMPS AND FIXTURES.

Curb complete for first 10 feet . . . . .	\$10.00
Each additional foot . . . . .	.35
Fig. 1659. Chain Pump Curb, fancy striped .	Each. 5.00
" 1661. Chain Pump Tubing . . . . .	Per foot. .10
" 1662. "Cooper" Grooved-edge Rubber Buckets,	
per set of 3 . . . . .	.75
" 1663. "Victor" Expansion Rubber Buckets, per	
set of 3 . . . . .	.75
" 1664. Patent Covered Ratchet Fixtures . .	Each. 2.00
" 1664. Wheels . . . . .	" .40
" 1665. Tubing Shoes . . . . .	" .15
" 1666. Tubing Clamps . . . . .	" .15
" 1667. Spouts . . . . .	" .35
Galvanized Pump Chain . . . . .	Per pound. .10
"Goss" Expansion Rubber Buckets, per set of 3 . . .	.75
Arbors . . . . .	Each. .30
Cranks . . . . .	" .35
Two-inch Buckets, "Victor" . . . . .	" .35

For illustrations, see page 538.



Fig. 1659.

Order by this Catalogue Figure Number, stating size wanted.

# PARTS TO RUBBER BUCKET CHAIN PUMPS.

SECTIONAL VIEW OF CURB WELL.

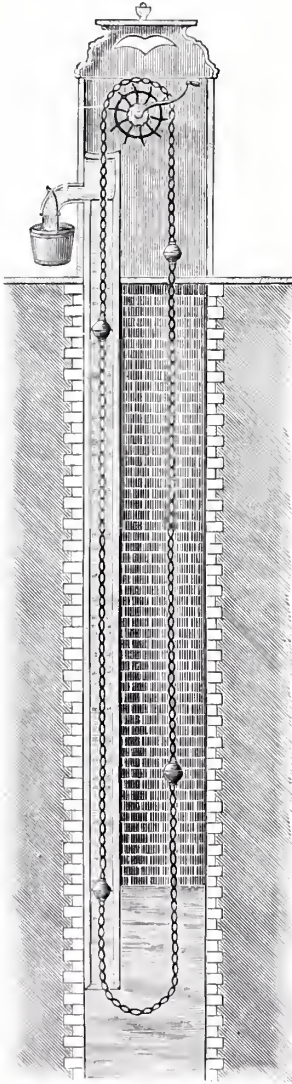


Fig. 1660.  
TUBING SHOES.

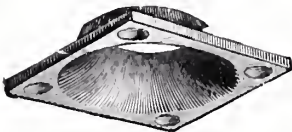


Fig. 1665.

WOOD TUBING.

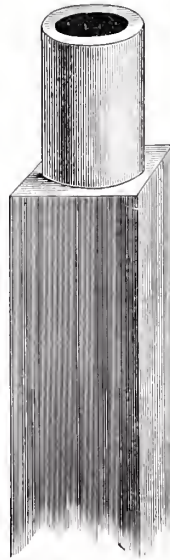
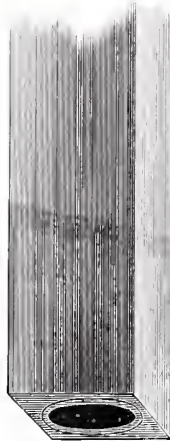


Fig. 1661.  
TUBING CLAMPS.



Fig. 1666.

"COOPER" EXPANDING BUCKET.

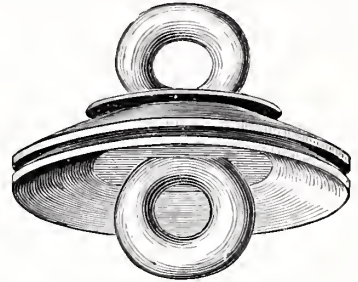


Fig. 1662.

"VICTOR" EXPANDING BUCKET.

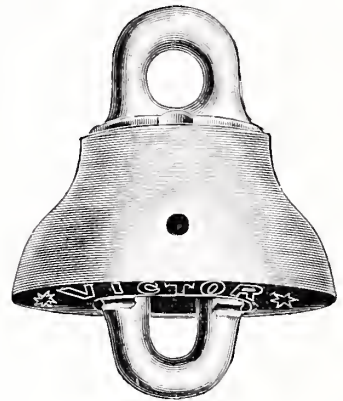


Fig. 1663.

CURB WHEEL.

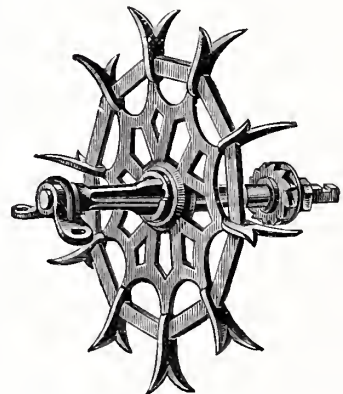


Fig. 1664.

CURB SPOUT.

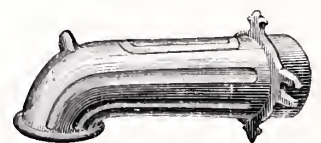


Fig. 1667.

Order by this Catalogue Figure Number, stating size wanted.



# BUCKEYE FORCE PUMPS.

AS ADAPTED FOR DIFFERENT WELLS.

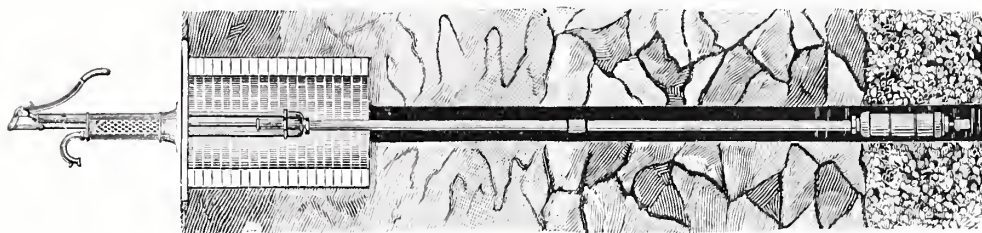


Fig. 1673.

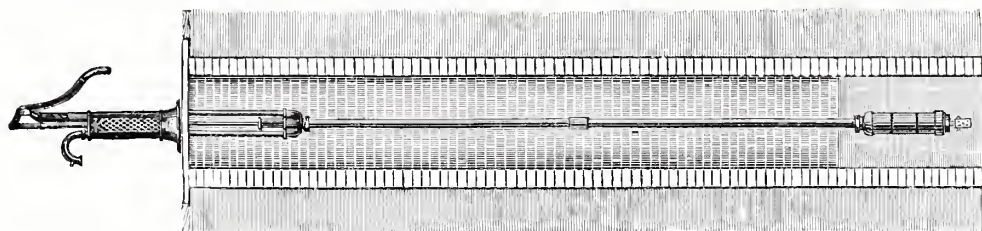


Fig. 1672.



Fig. 1671.

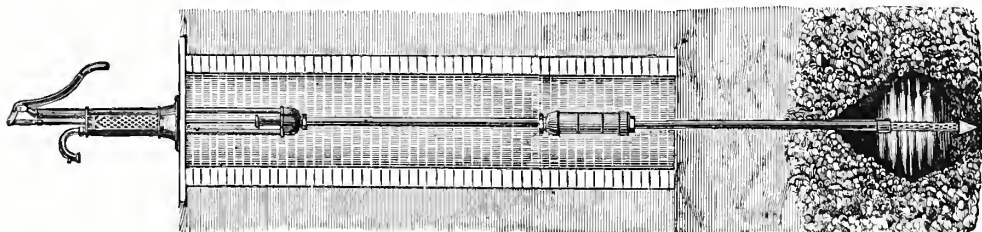


Fig. 1670.

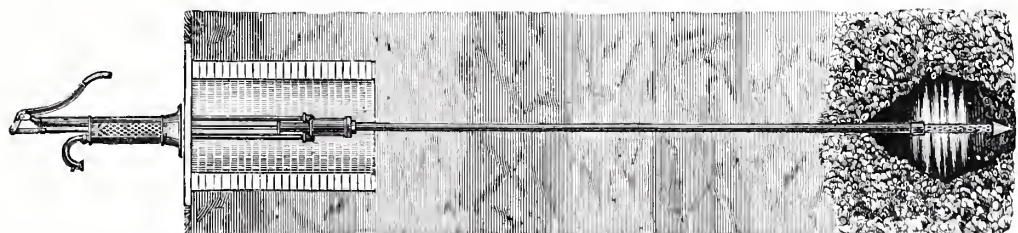


Fig. 1669.

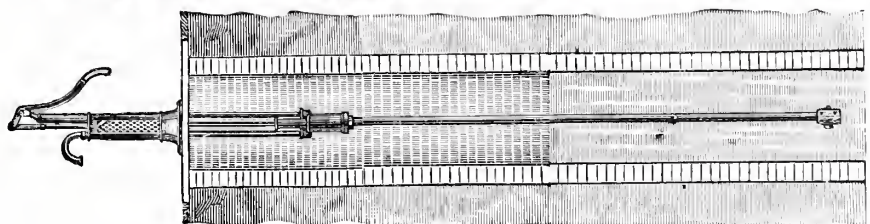


Fig. 1668.

See following page for explanation.  
Order by this Catalogue Figure Number, stating size wanted.



## BUCKEYE FORCE PUMPS.

The illustrations on page 539 show the different kinds of wells with the Buckeye Pump adapted for each. It is important that a deep well pump should be made of the best material, strong and substantial, and that the lower part be so well supported that it will not tremble or sway to one side.

In the Buckeye Deep Well Pump the top is made with two pipes extending into the well, and the entire weight of the water and lower part is secured by these pipes, one on each side. This not only holds the working parts all strictly in line, but maintains the entire pump firmly in its right position, which cannot be accomplished by single or side support. All our deep well pumps throw a continuous stream, and the top is made to ventilate the well, keeping the water pure.

Fig. 1668 represents a dug well not over 25 feet deep and the Buckeye Pump set complete ready for operation. Our trade Nos. 201, 204, 254 and 100 are especially adapted for this depth wells.

Fig. 1669 represents a driven well, shown with top dug down and bricked up, in order that the cylinder may be placed below freezing point. In all wells of this kind we would urge the use of points of large capacity, also that the cylinder be kept within twenty feet of the lower end of the point. If these two things are observed the driven well pumps will give much better satisfaction.

For 1½-inch drive point, use trade No. 201 ; for 1¾-inch, use trade No. 204 ; for 2-inch, use trade No. 254. It will be found a good plan to use 1½-inch point with trade No. 201 and 2-inch point with trade No. 204.

Fig. 1670 represents a dug well with pipe and point driven down. For this class of wells we would recommend any of the pumps trade numbered 215 to 234 inclusive, according to the depth and amount of water desired. This is a simple way of deepening dug wells, where the soil is such, a drive point can be used.

Fig. 1671 represents our Buckeye Force Pump in a bored or drilled well, with the casing extending upward to the surface of the ground and the platform placed on top of the casing. In such, a force pump throwing a steady stream of the largest capacity possible for wells of 4 or 5-inch bore is desired. We recommend for all bored wells our pumps trade numbered 415 to 439 inclusive.

Fig. 1672 shows an ordinary dug well, bricked up, and exceeding 30 feet in depth. For such wells we advise trade Nos. 215, 216, 217, 218 or No. 220, according to amount of water desired.

Fig. 1673 shows an ordinary drilled or bored well, with a dry well at surface in which to place upper pump cylinders below frost. For these wells of 6-inch bore or larger use any of our deep well pumps. We would recommend, in cases where it is necessary to deepen old wells, that this method be adopted wherever possible, as it is much preferable to the style shown in Fig. 1670.

## NOTES.

We recommend when setting deep well pumps that the lower cylinder be placed in the water within six to nine inches of the bottom of the well, as the valves will then be always submerged and not so liable to get out of order. The upper cylinder is one-half the capacity of the lower one, and no change of cylinders should ever be made. Each pump must be used with its appropriate cylinder as designated. The substitution of a different sized lower cylinder than that mentioned on the List effectually destroys the mechanical principles on which the pump is made, causes the pump to work unevenly, breaks the constant stream, and will fail to give satisfaction.

Pumps are priced without suction pipe. If pipe is wanted, state in your order whether black or galvanized ; also give depth from top of platform to bottom of well, and depth of water in well in dry season.

The prices given in our Lists all include an iron strainer for the lower end of the suction pipe and our quick-acting hose connection to attach hose to spout of pump. In referring to price-list of deep well pumps the price includes the lower cylinder and sufficient pipe and plunger rod to set the bottom of upper cylinder five feet below the platform.

## BUCKEYE FORCE PUMPS—CONTINUED.

The value of a pump is determined by its durability, simplicity, the ease with which it is operated in deep wells, protection from frost in winter, etc. The Buckeye Pump possesses all these valuable qualities in a greater degree than any other pump in the market. There are thousands of them in use in every part of the country, and the great demand created for them wherever introduced attests their value.

### DURABILITY.

The working and wearing part of a pump is the Cylinder. If that is defective the pump cannot work well, no matter how substantial the balance of the pump may be or how attractive in appearance. The cylinders of the Buckeye are made of brass or iron, lined with porcelain, which, being as smooth and hard as glass, does not wear the leather packing of the plungers. We use only the best leather for the valves, and all material used in the manufacture of the Buckeye Pump is calculated to do good service for years. All the New Style Pumps are fitted with our New Patent Brass Valve Seat.

SECTIONAL VIEW OF  
CYLINDER.

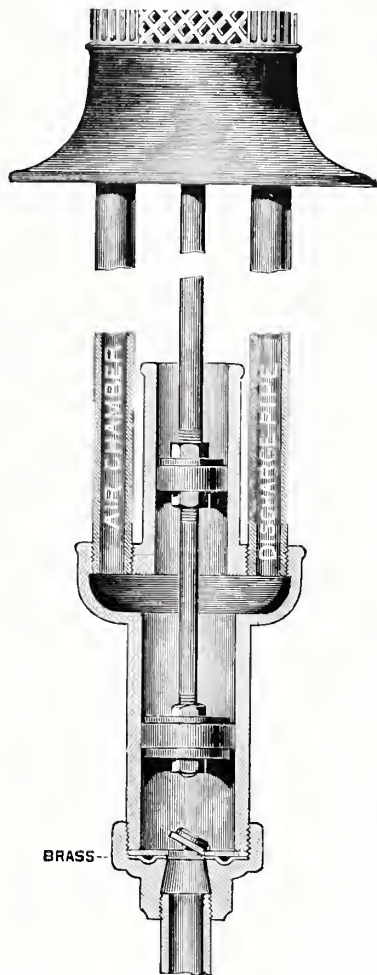


Fig. 1674.

### SIMPLICITY.

We call especial attention to the simplicity of construction of this pump; there is no stuffing or packing box as in most force pumps, and this fact alone should recommend the Buckeye above all others. The valves are simple and substantial, and not liable to clog with sand and dirt.

### EASE OF OPERATION.

As but one-half of the water in cylinder is discharged with each motion of the handle, the friction of the water passing through the pipe is greatly reduced. This is an important consideration. They are especially desirable for deep wells, as a woman or child can use them in ordinary wells.

### PROTECTION FROM FROST.

Each pump is provided with a small waste hole, not larger than a darning needle, in the discharge pipe, four feet below the platform, which will always allow the water to settle down to that point in the pipe after pumping, and is a sure protection against frost.

### GENERAL EFFICIENCY.

The water starts with the first or second motion of the handle, and the flow ceases the moment you stop pumping, leaving no drippings to form mud or ice on or around the platform. It throws a steady stream, and will force water 60 feet from the end of the hose nozzle.

### CAPACITY.

The inquiry is often made, "How much water will the Buckeye Pump supply in an hour or day?" The answer depends entirely on the length of stroke, size of cylinder and number of strokes per minute. A four-inch cylinder will furnish nearly double that of a three-inch, with the same stroke.

We give, on page 515, capacities of pumps which apply equally well to the Buckeye as to all others.

### PROTECTION FROM FIRE.

Each pump is provided with a hose coupling which can be instantly attached to the spout, and water forced to any part of the buildings or grounds. It is invaluable in case of fire—an engine company, says: "Having made a careful examination of the Buckeye Force Pump, I take pleasure in recommending it to all owners of buildings. It possesses great power, easily throwing water on the top of ordinary buildings. The use of the Buckeye in cases of fire would be of untold value." It is very convenient for washing buggies, sprinkling lawns, watering flower-beds, washing windows and like purposes.

### DESCRIPTION OF WORKING PARTS.

The above cut (Fig. 1674) illustrates the cylinder or working part of our pump. It will be observed that the upper part of the cylinder is the smaller, being one-half the capacity of the lower part. The cylinder is provided with two plungers connected together with an iron rod. The upper plunger is solid, and the pressed leather packing fits the cylinder closely, which prevents the water escaping out of the top of the cylinder. The lower plunger also fits nicely, and has a valve which opens on the down stroke and allows the water to pass through and closes on the up stroke.

BUCKEYE FORCE PUMPS—CONTINUED.

FOR CISTERNS AND SHALLOW WELLS.

BUCKEYE CISTERN PUMPS.

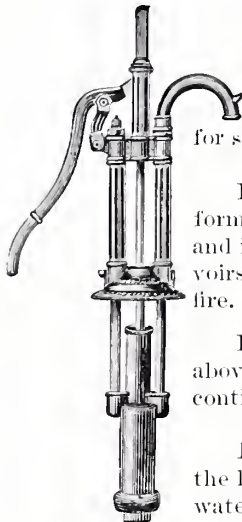


Fig. 1675.

The Pumps shown on this page represent Buckeye Pumps adapted for cisterns ; they can also be used for shallow wells.

Fig. 1675 has a three-inch cylinder two feet below platform. It is only adapted to be set upon a sink or stand, and is very convenient in greenhouses, or for filling reservoirs by the use of hose, as well as for protection against fire.

Fig. 1676 has the same size cylinder, but it is located above the base. Both are double-acting and pump a continuous stream.

In order to keep the Figs. 1675 and 1676 from freezing, the handle must be raised and the valve tripped so that the water can run down.

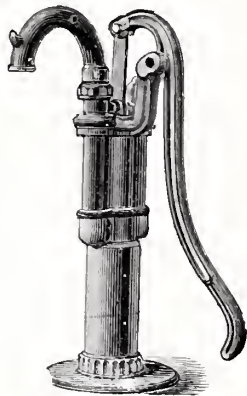


Fig. 1676.

BUCKEYE SHALLOW WELL PUMP.

In all cases where circumstances will admit the use of such a pump as is shown by Fig. 1677, it is by all means preferable. It has the cylinder down below freezing point, and will regulate itself so far as freezing is concerned.

This pattern pump is made in 3, 3½, 4 and 5-inch cylinder, and each can be fitted with Martin's three-way attachment, as shown in Fig. 1679. Any of these pumps can be used in cisterns 6 feet or more in depth. We also furnish these pumps with 9½-foot set lengths.

All prices named do not include Suction Pipe or Hose. For prices, see their respective List. Strainer for suction pipe, also hose coupling for hose, attached to each pump.

	Trade No.	Size Cylinder.	Fitted For.	Set Length.	Depth Well.	Price.	With Three-Way Cock.
Fig. 1675.	75	3 -inch.	1½ -inch.	2 ft.	20 ft.	\$12.00	. . .
" 1676.	70	3 "	1½ "	None.	. . .	9.00	. . .
" 1677.	201	3 "	1½ "	5 ft. 6 in.	26 ft.	14.00	16.00
" 1677.	204	3½ "	1½ "	5 " 6 "	26 "	16.00	18.50
" 1677.	254	4 "	2 "	5 " 6 "	26 "	17.00	19.50
" 1677.	257	5 "	2½ "	5 " 6 "	26 "	30.00	33.00
" 1677.	202	3 "	1½ "	9 " 6 "	26 to 30 ft.	15.50	17.50
" 1677.	205	3½ "	1½ "	9 " 6 "	26 " 30 "	17.50	20.00
" 1677.	259	4 "	2 "	9 " 6 "	26 " 30 "	18.50	21.00

Three-way discharge fitted for 1-inch or 3-inch pumps ; 1½ on 3½ and 4-inch pumps.

For price of 5-inch, Fig. 1677, see page 545.

Figs. 1668 to 1673, page 539, show pumps in operation

Order by this Catalogue Figure Number, stating size wanted.

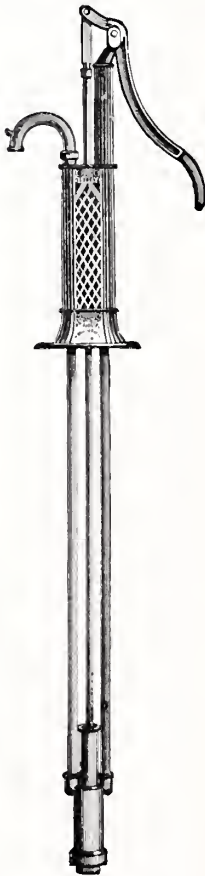


Fig. 1677.



# BUCKEYE FORCE PUMPS—CONTINUED.

## FOR DEEP WELLS.

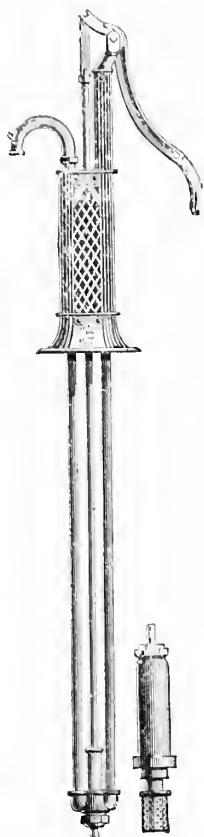


Fig. 1678.

All of the Buckeye Deep Well Pumps have brass upper cylinders, and either porcelain-lined, brass, or bored iron lower cylinders. The upper and lower cylinders are connected by pipe with a rod running through it to connect and operate the upper and lower plungers. We recommend that lower cylinder be placed in the water within 6 to 9 inches of the bottom of the well, as the valves will then be always submerged and not so liable to get out of order. The upper cylinder is one-half the capacity of the lower one, and no change of cylinders should ever be made. Each pump must be used with its appropriate cylinder as designated below. The substitution of a different sized lower cylinder than that mentioned on the list effectually destroys the mechanical principles on which the pump is made, causes the pump to work unevenly, breaks the constant stream, and will fail to give satisfaction. We furnish the following sizes :

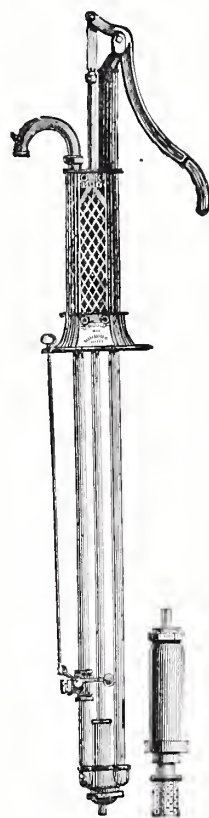


Fig. 1679.

Fig. No.	Trade No. for Hand Use	Adapted for Well.	Price with Porcelain Cylinder.		Price with 13-inch Brass Cylinder.		Price with 18-inch Brass Cylinder.		Trade No. for Power Use.
1678.	215	30 to 70 feet.	3 -inch.	\$15.00	3 -inch.	\$17.00	3 -inch.	\$18.50	237
1678.	216	30 " 50 "	3½ "	17.00	3½ "	19.00			238
1678.	217	100 feet and over.	2½ "	15.00	2½ "	17.00	2½ "	18.50	239
1678.	218	30 to 100 feet.	2½ "	15.00	2½ "	17.00	2½ "	18.50	236
1678.	220	30 " 40 "	4 "	19.50					222
1678.	120	25 " 70 "	5 "	40.00					

Fig. 1679. With Martin's 3-Way Cock, add \$2.00 to trade Nos. 215, 217, 218 ; \$2.50 to trade Nos. 216, 220.

For sizes of Pipe, etc., see page 513.

Can furnish lower Cylinders either capped outside or inside ; see Cylinder List. Cylinders shown above are capped outside.

Figs. 1668 to 1673 illustrate Pump in operation. Trade No. 120 has double brake same as Fig. 1682.

Order by this Catalogue Figure Number, stating size wanted.



BUCKEYE FORCE PUMPS — CONTINUED.

FOR SHALLOW AND CASED WELLS.

BUCKEYE SHALLOW WELL PUMP.

BUCKEYE CASING PUMP.

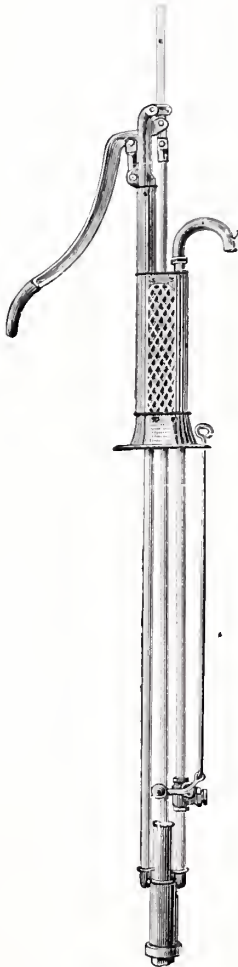


Fig. 1680.

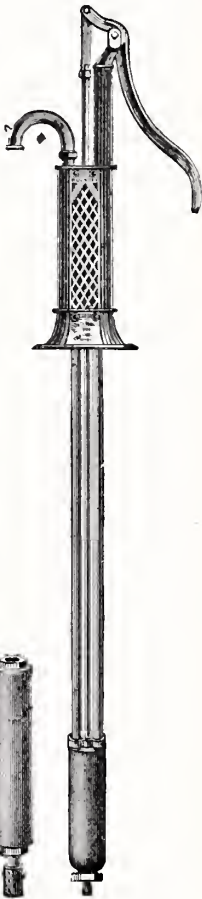


Fig. 1681.

While we do not usually recommend a double-acting pump for Wind Engine use, there are some places where it may be desirable to use them, and for such places there is nothing better than Fig. 1680. For sizes of suction pipe and general remarks refer to pages 513 and 514. We can furnish these both with and without the three-way attachment.

The rapidly increased use of well drilling machines drilling holes of from three to six inches in diameter, in various sections of the country, has created a demand for a pump that would be suitable for such wells. As will be seen by the illustrations, the Buckeye Casing Pump is so arranged that the upper cylinder and pipes connecting same to the pump-head will enter into and pass down the casing as far up as the base of the pump. By this manner of construction we avoid cutting off the casing, and by having a tight platform fitting on top of the casing of the well all surface water, toads, mice and other vermin are kept out of the well, and the water is absolutely pure.

Read remarks in regard to exchange of cylinders on page 543.

We can furnish these with Wind Engine Tops like Fig. 1680, but not with three-way attachment.

Read remarks regarding Buckeye Pumps on pages 540 and 541.

Figs. 1668 to 1673, page 539, illustrate pumps in operation.

All Casing Well Pumps fitted for 1½-inch pipe.

WITH WIND ENGINE TOP AND THREE-WAY COCK — Fig. 1680.

Trade No.	Size Cylinder.	Set Length.	Fitted For.	Adapted For.	With 3-Way Cock.	Without 3-Way C'k.
225	3 -inch.	5 ft. 6 in.	1½ pipe.	Wells to 26 ft.	\$17.00	\$15.00
240	3½ " "	" "	1½ " "	" "	19.50	17.00
255	4 " "	" "	2 " "	" "	20.50	18.00
257	5 " "	9 ft. 6 in.	2½ " "	" 30 ft.	33.00	30.00
230	3 " "	" "	1½ " "	" "	18.50	16.50
245	3½ " "	" "	1½ " "	" "	21.50	19.00
260	4 " "	" "	2 " "	" "	23.00	20.50

FOR 3 TO 6-INCH PIPE WELLS — Fig. 1681.

Trade No.	Size Well.	Depth Well.	Price Enameled.	13-inch Brass.	18-inch Brass.
415	4 -inch.	50 feet.	3 -inch cylinder, \$15.00	\$17.00	\$18.50
417	3 " "	100 " "	2½ " " 15.00	17.00	18.50
418	3½ " "	75 " "	2½ " " 15.00	17.00	18.50
437	4 " "	50 " "	3 " " 16.00	18.00	19.50
436	3½ " "	70 " "	2½ " " 16.00	18.00	19.50
439	3 " "	150 " "	2½ " " 16.00	18.00	19.50

Trade Nos. 437, 436 and 439 with Wind Engine Tops.  
Order by this Catalogue Figure Number, stating size wanted.

# BUCKEYE FORCE PUMPS—CONTINUED.

## FOR FIRE USE AND DEEP WELLS.

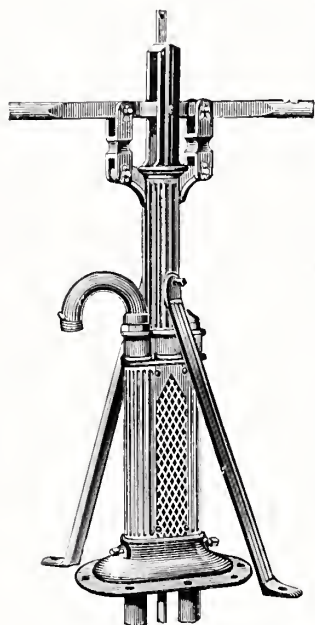
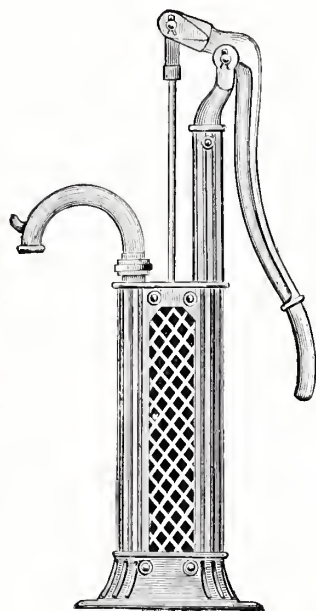


Fig. 1682 represents our Village or Fire Pump, Trade No. 100. It has a five-inch cylinder 5½ feet below the platform, adapted for 2½-inch suction pipe. It is intended for wells 25 feet deep and under. The spout is threaded for coupling for 1½-inch hose. It is provided with two iron handles about four feet long, so that two or four men can use it in case of necessity. Thousands of dollars' worth of property is saved annually by this pump.

Trade No. 120 has the same size cylinder, but is intended for wells over 25 feet deep. It is fitted to place the cylinder down at the bottom of the well. It has 2-inch pipe between the upper and lower cylinder.



## BUCKEYE CASING PUMP,

### WITH 9-INCH STROKE.

Fig. 1683 is for Deep or Shallow Wells. Especially designed to secure the largest amount of water in a given length of time from a cylinder of medium or small diameter, by increasing the length of stroke to 9 inches, and providing suitable leverage in the handle. It increases the capacity of the pump nearly one-half, and overcomes the objections to the use of small cylinders as used in casing wells.



Fig. 1682.



Fig. 1683.

Fig. 1682	— Trade No. 100 ; 5-inch Cylinder ; 2½-inch Suction, 1½-inch Hose . . . . .	\$40.00
" 1682	" " 120 ; 5 " " 2 " " 1½ " " . . . . .	40.00
Fig. 1683	— Trade No. 401 ; 3-inch, enameled lower cylinder, capped inside, 5½ feet to cylinder, . . . . .	14.00
" 1683	" " 401 ; 3-inch, brass lower cylinder, capped inside, 5½ feet to cylinder . . . . .	16.00

All Casing Well Pumps have lower cylinder, capped inside, and fitted for 1½-inch suction.

Order by this Catalogue Figure Number, stating size wanted.

# IMPROVED BUCKEYE LIFT PUMPS.

Has Patent Stamped Brass Valve Seat, Sectional Ventilating Standard, Reservoir Top, Funnel-Shaped Cap for Priming, Swivel Fulcrum, and is Anti-Freezing.

Furnished with either Porcelain or Brass-Lined Inside or Outside Capped Cylinder, with Five Feet Wrought Iron Set Length.

In the conception and manufacture of the Improved Buckeye Lift Pump, it was the intention to produce a pump, that, like the famous Buckeye Double-Acting Force Pumps—that now have a reputation extending into all the civilized countries of the earth—should far surpass every other article of its class.

It will be seen at a glance that the Improved Buckeye, illustrated by the annexed cut, combines all the important features necessary to make it the handsomest, strongest, and most perfectly operating Lift Pump on the market.

It is the only Lift Pump made to-day with a Ventilating Standard, thus not only allowing the escape of impure air and gases from the well, but adding largely to the strength and artistic appearance of the pump.

The wrought iron pipe constituting the set length is screwed into the head of the pump just below the spout. A vent hole located just above the cylinder, allows all the water to escape from the pump above frost line, thus preventing freezing in winter.

The Reservoir Top holds a sufficient quantity of water, when pumping, to produce a steady stream at the spout, and prevents the water overflowing at the top.

One of the greatest features of the Improved Buckeye Lift Pump, for which letters patent are pending, is its construction of the following separate and distinct parts, viz.: Base, Ventilating Section, Head, Fulcrum, and Wrought Iron Set Length, all securely connected together with Screw Threads, thus allowing repairs for any of these parts to be supplied without incurring the expense of an entire new Standard.

The Improved Buckeye Lift Pump, with regular set length, is especially adapted for wells not over 26 feet deep, but by lengthening the connecting pipe and rod between the base and cylinder, they can be used in any depth well desired.

They are recommended for large stock farms, irrigation, etc., where it is necessary to raise large quantities of water from shallow wells to the surface of the ground only.



Fig. 1684.



Fig. 1685.

FOR HAND USE ONLY. WITH 5-FOOT SET LENGTH.						FOR WIND ENGINE OR HAND. WITH 5-FOOT SET LENGTH.					
Fig. No.	Trade No.	Size Cylinder.	Suction.	Enam. Cylinder.	Brass Cylinder.	Fig. No.	Trade No.	Size Cylinder.	Suction.	Enam. Cylinder.	Brass Cylinder.
1684	319	2½-in.	1½-in.	\$10.00	10.50	1684	299	2½-in.	1½-in.	\$10.50	11.00
1684	321	3 "	1¾ "	10.00	11.00	1684	301	3 "	1¾ "	10.50	11.50
1684	323	3½ "	1½ "	11.00	11.50	1684	303	3½ "	1½ "	11.50	12.00
1684	325	4 "	2 "	13.00	13.50	1684	305	4 "	2 "	13.50	14.00
						1684	307	5 "	2½ "	17.50	..
						1684	309	6 "	3 "	20.00	..
Price of Standard only, \$7.00.						Price of Standard only, \$8.00.					

Order by this Catalogue Figure Number, stating size wanted.



# CYLINDER AND REPAIR LIST OF BUCKEYE PUMPS.



Fig. 1686.

## NOTES.

Order all castings but Cylinders by letters, cast into same; order Cylinders by inside diameter at bottom, stating whether brass or porcelain-lined, and whether for shallow or deep well pump. Order all parts of Plungers by giving name, and diameter of lower cylinder.

## HANDLES.

Number.	Size of Bolt Hole.	Price.	Number.	Size of Bolt Hole.	Price.
D2	$\frac{1}{2}$ -inch hole.	\$1.00	D99X	$\frac{1}{2}$ -inch hole.	\$1.25
D120	" "	1.25	D130	" "	1.50
D140	" "	1.25	D170	" "	1.50
D2X	" "	1.00	D62	" "	1.50
D120X	" "	1.25	D60	Cistern Pump.	1.00
D140X	" "	1.50	D62X	$\frac{3}{8}$ -inch hole.	1.50

## HALF STANDARDS.

Number.	Hand.	Handle Hole.	Price.	Number.	Hand.	Handle Hole.	Price.
X	Right.	$\frac{1}{2}$ -inch.	\$2.50	UU	Left.	$\frac{1}{2}$ -inch.	\$3.00
XX	Left.	" "	2.50	UX	Right.	" "	3.00
XO	Right.	" "	2.50	UUX	Left.	" "	3.00
XXO	Left.	" "	2.50	V	Right.	" "	3.50
Y	Right.	" "	3.00	VV	Left.	" "	3.50
YY	Left.	" "	3.00	VX	Right.	" "	3.50
YO	Right.	" "	3.00	VVX	Left.	" "	3.50
YYO	Left.	" "	3.00	S	Right.	" "	3.00
T	Right.	" "	2.50	SS	Left.	" "	3.00
TT	Left.	" "	2.50	P	Right.	" "	3.00
U	Right.	" "	3.00	PP	Left.	" "	3.00

## CYLINDERS FOR BUCKEYE PUMPS.

Size.	Description.	Kind.	Cylinder Only.	Cylinder Complete.	Size.	Description.	Kind.	Cylinder Only.	Cylinder Complete.
3 -inch.	Double.	Porcelain	\$3.00	\$5.75	2 $\frac{1}{2}$ x 18	*Lower.	Brass.	\$6.00	\$10.00
3 $\frac{1}{2}$ "	"	"	3.50	6.60	2 $\frac{1}{2}$ x 18	"	"	6.50	10.50
4 "	"	"	4.00	7.45	3 x 18	"	"	7.00	11.00
5 "	"	"	6.00	10.50	1 $\frac{3}{8}$ -inch.	Upper.	"	2.25	2.75
D67	No. 70.	"	3.00	6.00	1 $\frac{1}{4}$ "	"	"	2.37	2.92
2 $\frac{1}{2}$ -inch.	*Lower.	"	2.25	4.50	2 $\frac{3}{8}$ "	"	"	2.50	3.10
2 $\frac{1}{2}$ "	"	"	2.37	4.50	2 $\frac{1}{2}$ "	"	"	2.75	3.45
3 "	"	"	2.50	4.50	2 $\frac{1}{2}$ "	"	"	3.50	4.50
3 $\frac{1}{2}$ "	"	"	2.75	5.50	3 $\frac{3}{8}$ "	"	"	4.50	6.00
4 "	"	"	4.00	7.00	1 $\frac{1}{2}$ "	"	"	3.00	3.50
5 "	"	"	6.00	9.00	2 $\frac{1}{4}$ x 18	Lower.	Porcelain	2.25	4.50
6 "	"	"	8.00	12.00	2 $\frac{1}{2}$ x 18	"	"	2.37	4.50
2 $\frac{1}{4}$ x 13	"	Brass.	5.00	8.00	3 x 18	"	"	2.50	4.50
2 $\frac{1}{2}$ x 13	"	"	5.50	8.50	No. 21.	2 $\frac{1}{4}$ Upper.	Iron.	2.00	3.50
3 x 13	"	"	6.00	9.00	No. 21.	2 $\frac{1}{2}$ "	"	2.00	3.75
3 $\frac{1}{2}$ x 13	"	"	6.50	10.00	No. 19.	3 "	"	2.25	4.25

\*In ordering Lower Cylinders, state whether caps are inside or outside; unless otherwise ordered we always send outside.



REPAIR LIST OF BUCKEYE PUMPS.

PLUNGERS, LEATHERS, ETC.

SIZE CYLINDER, IN.	2½	3	3½	4	5	6	SIZE CYLINDER, IN.	2½	3	3½	4	5	6
PLUNGERS, ETC.							LEATHERS.						
Trade No. 70, comp.		1.85					Lower Plunger	\$0.23	.25	.30	.35	.40	.50
Upper, complete	\$0.55	.60	.70	.80	1.00		Upper "	.17	.20	.25	.30	.35	.45
Lower, Leather V'Ve	.85	.90	1.10	1.20	1.50	2.50	Valve	.07	.10	.10	.10	.15	.25
" Cage Valve	1.12	1.25					Check Valve	.13	.15	.20	.25	.30	.40
" Long Cage "	1.37	1.50					Complete Set	.60	.70	.85	1.00	1.20	1.60
Double, complete		1.50	1.75	2.00	2.50		Check Valve, comp.	.45	.50	.55	.60	.75	1.00
Cage only	.48	.55					Weight and Screw	.09	.10	.12	.14	.14	.15
Cage Bottom only	.27	.30					CAPS.						
Long Cage "	.52	.55					Cylinder Caps, any						
Stem V'Ve for Cage	.20	.20					Pattern	.70	.75	.80	.85	1.25	1.50
Upper Castings	.25	.30	.35	.40	.50	.60	Strainers	.30	.30	.30	.50	.50	.60
Lower "	.30	.35	.40	.45	.50	.60	Hose Coupling	.15	.15	.15	.15	.15	.15
Cast Nut	.11	.12	.13	.14	.16	.18	Brass Valve Seat	.20	.25	.30	.35	.40	
PLUNGER RODS.							Rubber Gasket	.06	.07	.08	.09	.10	
Short, ½-inch pipe	.80	.80	.80	.80			Pipes, short	.87	.87	1.25	1.25		
Long, ½ "	1.35	1.35	1.35	1.35			" long	1.45	1.45	2.00	2.00		

REPAIRS, MARTIN'S 3-WAY COCK.

SIZE OF MAIN PIPES	INCHES.	¾	1	1¼
Iron Shells		\$1.50	1.75	2.50
Brass Stems		.85	.85	1.00
Leather Valves for Brass Stems		.05	.05	.10
Bolt and Nut for Valves		.05	.05	.08
Brass Stuffing Box		.30	.35	.50
" " Nut		.20	.25	.25
Lever and Ball		.40	.40	.60
Rods		.10	.10	.15
Check Valve Leathers		.05	.05	.06
" " Weight and Screw		.05	.05	.06
Iron Bushing		.07	.09	.12

CASTINGS ONLY, FOR BRASS UPPER CYLINDERS. BRASS UPPER CYLINDERS, WITHOUT CASTINGS.  
Inside Diameter in Inches.

No. 1X	No. 6X	No. 2X	No. 4X	No. 8	No. 11	No. 13	No. 17	1½X12	1½X6¾	1¾X6¾	2¾X6¾	2¾X7	2¾X7	3¾X9
\$0.80	.75	.75	.80	.85	1.00	1.25	1.00	2.20	1.50	1.62	1.70	1.90	2.50	3.25

GOOSE-NECKS, NEW STYLE, WITH UNION.

¾-inch for 2½, 2½ and 3-inch Cylinder Pumps	\$0.60
D14 for 3½ and 4-inch Cylinder Pumps and Trade No. 70 Pump	.65
Union Rings for Goose-Necks	.20
Union Thimbles for Goose-Necks	.15

MISCELLANEOUS.

No. 6X. Connection for Windmill Pumps	\$0.20
" 6XI. " " Improved.	.20
" 6XI. Bushed for ¾ Pipe, for Casing Pumps Trade Nos. 436, 439, 437.	.25
Wrought Extension for Windmill Pump, 1X, ½X, 21, 22½ and 24 inches	.75
" " Hand Pump, 1X, ½X, 8.	.50
No. H. C. Connection for Hand Pumps	.30
" " I. Connection for Casing Pumps Trade Nos. 417, 418	.30
" " N. " " No. 415	.30
¾-inch Pin and Keys for Plunger Rod and Handle	.25
" " Fulcrum and Handle	.30
¾ " Handle, Fulcrum and Link Bolts.	.05
No. D34Y, Link	.25
¾ and 1-inch Air Chamber Nut	.25
3-inch Enameled Shell only, for Trade No. 70 Pump.	1.50

# "DAISY" DOUBLE-ACTING FORCE PUMPS.

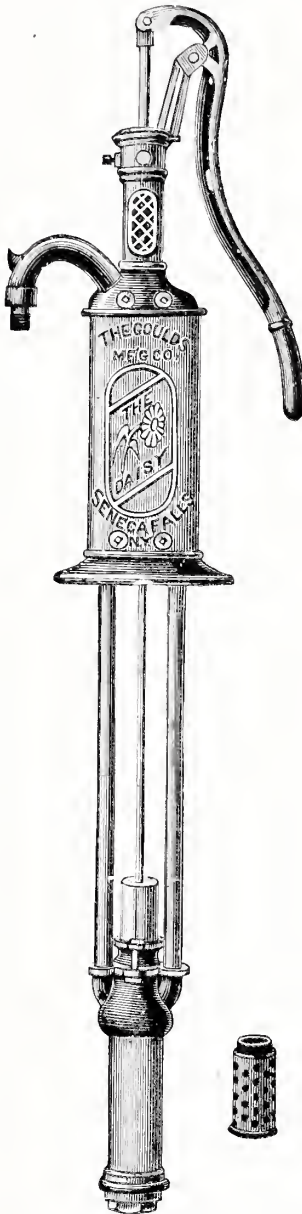


Fig. 1687.

With Brass-Lined Cylinder, for Shallow or for Deep Wells. Patented Dec. 6, 1887.

Fig. 1687 shows our New Double-Acting Force Pump with revolving common top for shallow wells. Our construction differs from any of this class of popular pumps hitherto put in the market, and has points of superiority that are worth considering, and which will doubtless make it the favorite when seen and used.

1st — The top is not fixed and rigid, but revolves to any point, like that of all others of this kind.

2d — There is only one cylinder and plunger. We do not have to resort to all sorts of expedients to keep the upper cylinder packed, such as expanding rubber plungers, etc., to take up the wear.

3d — There being only one plunger, the friction is reduced to a minimum, and there is less liability to get out of repair.

4th — This plunger is brass-cased and the cylinder brass-lined, so they cannot rust or wear out.

5th — The water passages are very large and perfectly direct, without a single bend or curve.

Fig. 1688 shows the "Daisy" as we supply it when wanted for Drilled Wells. The upper cylinder is suspended about five feet below ground, and any of our numerous styles of cylinders can be used at the bottom of well for the lower one. These upper and lower cylinders must, however, sustain a proper relation to each other, otherwise the smoothness of the flow of water will be destroyed. The No. 2 size will go inside 4-inch casing, and the No. 4 inside 5-inch casing. A strainer goes with each, as shown in cut.

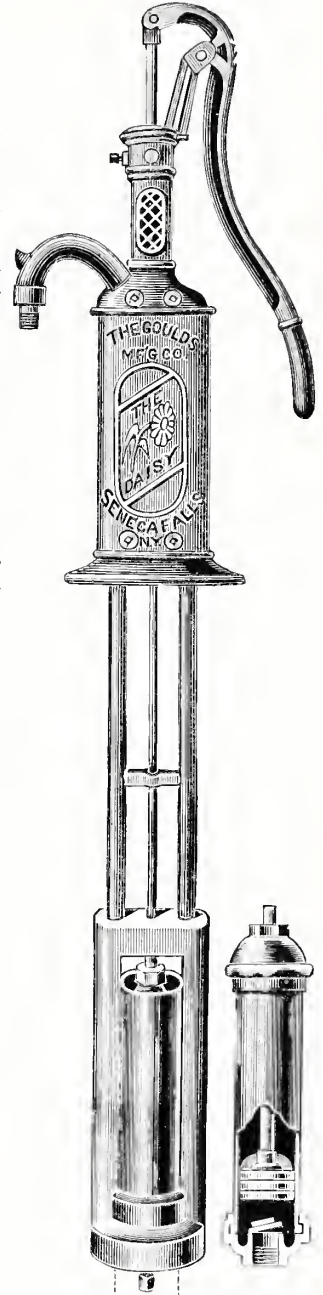


Fig. 1688.

	Size No.	Diam. Cylinder.	Suction.	For Wells.	Price.	With 3-Way C'k.
Fig. 1687 . .	4	3 -inch.	1½	26 ft. or less.	\$14.00	17.00
" 1687 . .	6	3½ "	1½	26 " " "	16.00	20.00

	Size No.	Diam. Upper Cyl. Inch.	Lower Cyl. Inch.	Suc. Inch.	Inch. Stroke.	Gal. per Stroke.	Inside Diam. Well Cas. Inch.	*Lift and Force. Feet.	Approx. Weight.	Brass-Lined Cyl. Price.	With 3-Way C'k.	Brass-Body Cyl. Price.	With 3-Way C'k.
Fig. 1688 . .	2	1¾	2½ x 12	1½	5	1/8	4	100	73 lbs.	\$15.00	18.00	17.00	17.00
" 1688 . .	4	2½	3 x 12	1½	5	1/8	5	70	83 "	15.50	19.00	17.50	20.00

\* Depth of wells to which Pumps may be adapted by placing lower Cylinder within 15 or 20 feet of water or total lift and force from supply to point of delivery.

Order by this Catalogue Figure Number, stating size wanted.





# ANTI-FREEZING "NEW STAR" WELL PUMPS—CONTINUED.

WITH WROUGHT IRON CONNECTING PIPE.

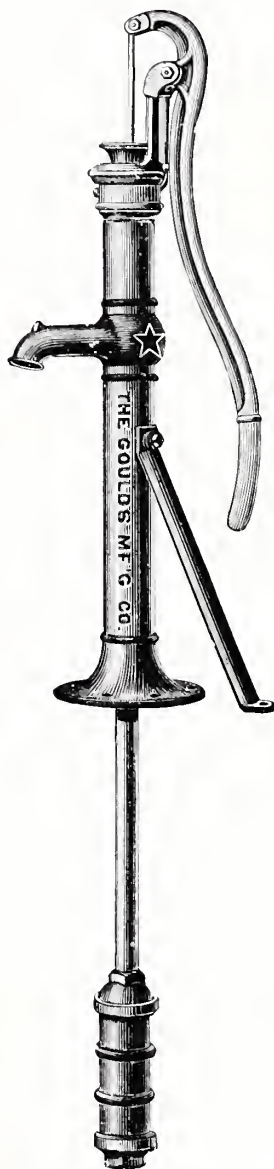


Fig. 1691.

Fig. 1691 represents our larger size "New Star" Well Pump, standard with bowl or funnel-shape cap. This style of Pump is a favorite with well drivers, for in opening and cleaning out new wells it is oftentimes necessary to prime pump and this top cap is especially well adapted for that purpose.

Fig. 1692 is the same standard with an admirable tight top cap, polished rod and links above. We think this Pump combines the best features of this class, for this tight top prevents all stones, sticks or ice finding their way into the Pump and destroying its usefulness. It has found many admirers on this account, and it seems to be well regarded by the trade.

It is anti-freezing also, and has our Patent Sand-Valve seat on the cylinder. The connecting pipe is wrought iron; the rod is polished, and the bearer and lever can be revolved to any desired position. It will be seen this Pump possesses all the characteristics that are of importance and value, and is all that can be sought for in one of its kind, while its cheapness, considering its large size, is certainly much in its favor.

Both of these pumps are tapped to receive wrought iron pipe near the spout, and not at the base.

Height, base to lever top, 45 inches.

Can furnish these pumps with Three-Bolt Cylinder at same price.

Fig. 1691. Standard complete, less set length . . . . . \$5.50

" 1692. Standard complete, less set length . . . . . 5.75



Fig. 1692.

Size No.	Diameter Cylinder.	Suction.	Stroke.	Capacity per Stroke.	Fig. 1691.	Fig. 1692.
2	2½-inch.	1½-inch.	6-inch.	⅛-gallon.	\$8.00	8.75
3	2¾ " "	1¼ " "	6 " "	⅜ " "	8.25	9.00
4	3 " "	1½ " "	6 " "	⅝ " "	8.50	9.25
5	3¼ " "	1¾ " "	6 " "	¾ " "	8.75	9.50

Order by this Catalogue Figure Number, stating size wanted.



# ANTI-FREEZING “NEW STAR” WELL PUMPS—CONTINUED.

WITH WROUGHT IRON SET LENGTHS.

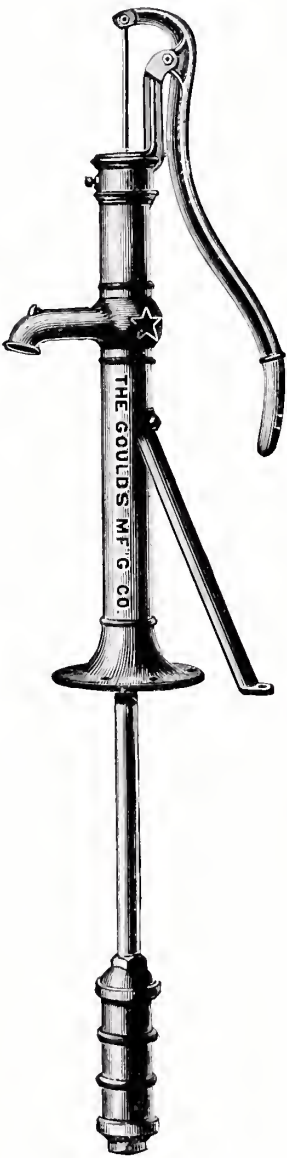


Fig. 1693.

Fig. 1693 is the latest and best of its kind, is called our “New Star” Well Pump.

When built as described, it is intended for outdoor cisterns and shallow wells—dug, drilled or driven—where water is not more than 25 feet below ground line.

In our opinion, this pump, as shown in illustrations, is so superior and desirable in every respect, and so fully supplies the average demand for a pump of its kind, that we shall aim to have it supplant all other styles of set length well pumps we now sell.

Height, base to lever top, 43 inches.

Fig. 1694 shows our “New Star” Well Pump with tight top. This style of pump is liked, because the piston rod is guided above and moves up and down in a straight line, instead of oscillating, and because there is no opening through which anything can be thrown into the well.

Height, base to upper guide, 45 in.

These pumps are tapped and receive the wrought iron pipe near the spout and not at the base.



Fig. 1694.

- Fig. 1693. Standard only, complete . . . . . \$5.50
- “ 1694. Standard only, complete . . . . . 7.00

Size No.	Diameter Cylinder.	Suction.	Stroke.	Capacity per Stroke.	Fig. 1693.	Fig. 1694.
2	2½-inch.	1½-inch.	6-inch.	½-gallon.	\$8.00	9.00
3	2¾ “	1¾ “	6 “	¾ “	8.25	9.25
4	3 “	1¾ “	6 “	1 “	8.50	9.50
5	3¼ “	1¾ “	6 “	1 ½ “	8.75	9.75

Order by this Catalogue Figure Number, stating size wanted.

# ANTI-FREEZING "NEW STAR" WELL PUMPS—CONTINUED.

WITH CAST OR WROUGHT IRON SET LENGTHS.

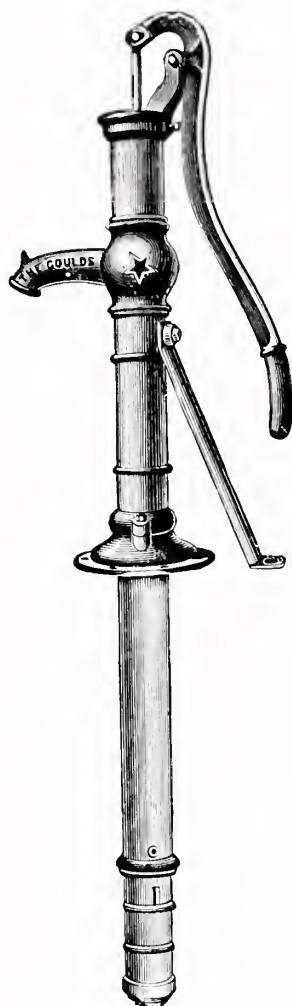


Fig. 1695.

Fig. 1695 represents a well-formed and attractive Pump, as the cut indicates. It is adapted for setting in outdoor cisterns and shallow wells, where water is not to be lifted over 15 to 25 feet. It is composed of a standard, cast iron connecting pipe and cylinder, having the valves in it.

The internal diameter of the standard is a trifle larger than that of the cylinder; hence the plunger, after removing the top, which can be done by loosening the set screw under the lever, can be drawn up through it, repaired and replaced with very little effort or delay.

Fig. 1696 is equally appropriate for outdoor cisterns and shallow wells, and is also anti-freezing by the nature of its construction. The base and standard are bolted together by two strong bolts, and the whole combination of the different parts is such as to produce a strong yet simple Pump, not liable to get out of repair, and very efficient. By adding to the connecting pipe and piston rod, and dropping the cylinder further into the well, until the cylinder is within say 15 to 20 feet of the surface of the water, this Pump could be used in wells from 30 to 40 feet deep. Can furnish with 3-Bolt Cylinder at same price.

Height, base to lever top, 33 to 40 inches.

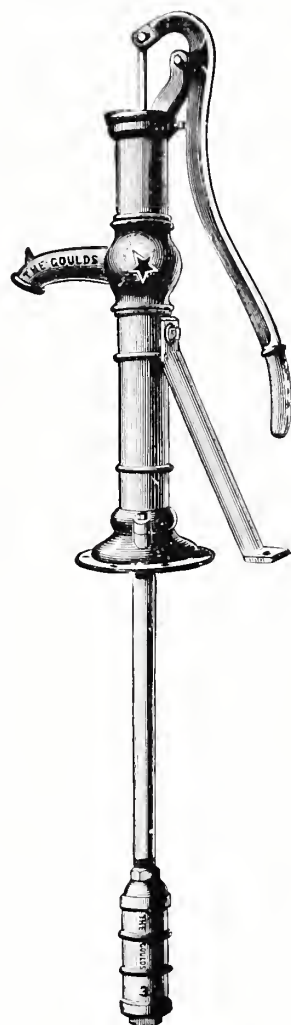


Fig. 1696.

	Size No.	Diam. Cyl.	Suc. Inch.	Stroke Inch.	Capac. per Stroke Gal.	Price.		Size No.	Diam. Cyl.	Suc. Inch.	Stroke Inch.	Capac. per Stroke Gal.	Price.
Fig. 1695 . . . . .	2	2 $\frac{1}{4}$	1	6	$\frac{1}{10}$	\$7.00	Fig. 1696 . . . . .	1	2 $\frac{1}{4}$	1	6	$\frac{1}{10}$	\$7.00
" 1695 . . . . .	3	2 $\frac{1}{2}$	1 $\frac{1}{4}$	6	$\frac{1}{8}$	7.50	" 1696 . . . . .	2	2 $\frac{1}{2}$	1 $\frac{1}{4}$	6	$\frac{1}{8}$	7.50
" 1695 . . . . .	4	2 $\frac{3}{4}$	1 $\frac{3}{4}$	6	$\frac{3}{16}$	8.00	" 1696 . . . . .	3	2 $\frac{3}{4}$	1 $\frac{3}{4}$	6	$\frac{3}{16}$	8.00
" 1695 . . . . .	5	3	1 $\frac{3}{4}$	6	$\frac{1}{4}$	8.50	" 1696 . . . . .	4	3	1 $\frac{3}{4}$	6	$\frac{1}{4}$	8.50
" 1695 . . . . .	..	..	..	..	..	..	" 1696 . . . . .	5	3 $\frac{1}{4}$	1 $\frac{3}{4}$	6	$\frac{1}{4}$	9.00

SIZE. . . . .	NUMBER.	2	3	4	5
Fig. 1696. Standard complete, less set length . . . . .		\$4.25	4.50	5.00	5.25

Order by this Catalogue Figure Number, stating size wanted.

SINGLE-ACTING WIND ENGINE PUMPS.



FOR SHALLOW WELLS. HAND OR POWER USE.

Fig. 1697 represents the best Pump for its particular use the market affords.

The extensive use of Wind Engines of late years has made a large demand for Force Pumps, and while we usually recommend our Figs. 1710 and 1714, there are places where a pump which can be operated by hand as well as wind engine is desirable, and it is to fill this special case that we offer our Fig. 1697. This outfit consists of our Fig. 1697, Standard with Brass Cylinder attached, and is a strong and substantial Pump.

Fig. 1697.

Stroke.	Suction.	A. C. Pipe.	Dis. Pipe.	Capacity for Lift and Force.	Height Base to Upper Guide.	Length Base to Bottom Flange	Approximate Weight.	Price.
6-inch. 10 "	1½-inch. 2 "	1½-inch. 1½ "	1¼-inch. 1¼ "	2½-inch Cyl. 100 ft. 3 " " 60 "	45 inch. 50 "	56 inch. 56 "	135 lbs. 143 "	\$24.50 26.00

# ANTI-FREEZING FORCE PUMPS.

## REVOLVING TOP. WITH PATENT VERTICAL SHIFTING VALVE. FOR MANUAL OR WIND POWER.

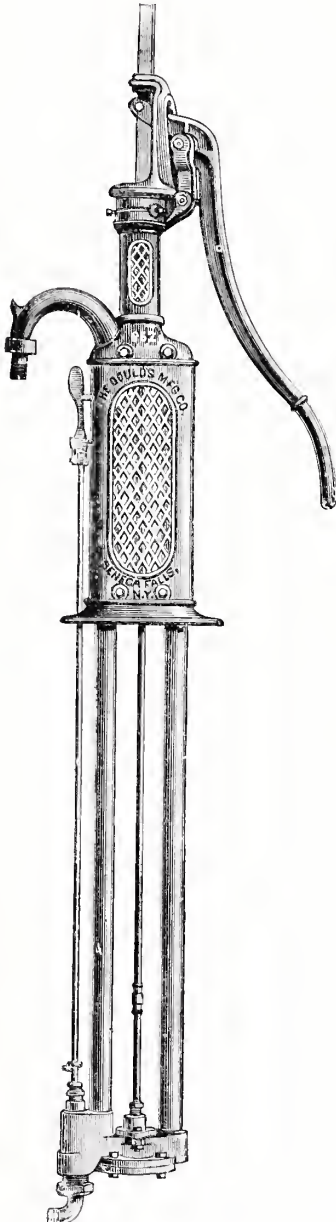


Fig. 1698.

Fig. 1698 represents our new Anti-Freezing Revolving Top Windmill Force Pump, with patent vertical distributing valve, lock handle and brass elbow attachment at bottom outlet. The bearer top revolves to any point.

The connecting pipes are large and extend nearly the entire height of Standard (to spout opening), and are so guided and held in place as to form a supporting brace to the Standard. The stuffing boxes are both below ground and cannot be affected by the frost. At the lower working head, both the top and bottom attachments are bolted to it, and by simply removing these, the plunger and rod may be drawn up through the Standard. The distributing valve is placed in a brass-lined chamber, and is raised and lowered by a single movement of the small handle shown at side of Standard, while this handle is automatically and securely locked against it, as it is necessary to keep the valve in any desired position.

In connection with this Pump we would advise using, near the brass elbow at bottom of outlet, a horizontal check valve. This is not strictly necessary, but aids the working of the Pump by relieving the valves of all heavy pressure from the tank or pipe. Always fitted for  $\frac{3}{4}$ -inch hose coupling at the spout and for  $1\frac{1}{4}$ -inch iron pipe at brass elbow attachment. Bottom flange is always fitted as below unless otherwise ordered. We do not furnish Windmill Slides unless especially ordered.

Stroke.	Suction.	Height Stand.	Set Length.	Price.
6-inch.	14-inch.	45 inch.	56 inch.	\$16.00
10 "	2 "	50 "	56 "	17.50

For price Horizontal Check Valve, see List.

For Cylinders to use with Fig. 1698, see List.

Order by this Catalogue Figure Number, stating size wanted.



# NEW ANTI-FREEZING WINDMILL FORCE PUMPS—CONTINUED.

WITH PATENT VERTICAL DISTRIBUTING VALVE AND BRASS  
ELBOW ATTACHMENT.

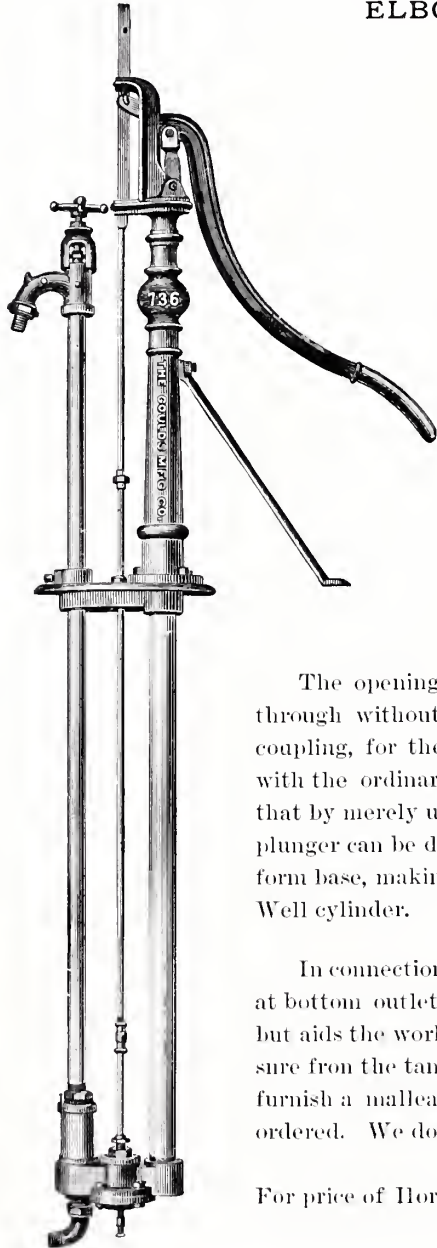


Fig. 1699.

Fig. 1699 represents our Anti-Freezing Windmill Force Pump, with vertical distributing valve and brass elbow attachment at the bottom outlet. One-and-a-quarter inch iron pipe is used for the discharge, which is made in one piece and held in place with a set screw at the platform base, so that by merely unscrewing the coupling below and loosening the set screw at the base the pipe can be pulled up and the valve and working parts examined and repaired. Two-inch iron pipe is used for the air chamber, which is done to strenghten the set length and keep the working parts in perfect line with each other. At the bottom outlet a brass elbow union attachment is used, which makes it more convenient in making the regular pipe connections than any other way. A regular brass stuffing box is used above the spout, which prevents all leakage when hose is connected. The valve is opened and closed by turning the wheel above the stuffing box, as shown is cut.

The opening through the platform is made larger, and pipe can pass through without taking off the standard. We also use a malleable iron coupling, for the plunger rod, which can be disconnected much easier than with the ordinary coupling. At the lower working head it is so arranged that by merely unscrewing the cap or attachment on top, a 2-inch or 2½-inch plunger can be drawn through, and so on up through the opening at the platform base, making it a very desirable pump head to use with our Artesian Well cylinder.

In connection with this pump we would advise using near the brass elbow at bottom outlet, a horizontal check valve. This is not strictly necessary, but aids the working of the pump by relieving the valves of all heavy pressure from the tank or pipe. When fitted for 2-inch suction pipe, we always furnish a malleable forked rod connection for wood rod unless otherwise ordered. We do not furnish Windmill Slides unless especially ordered.

For price of Horizontal Check Valves, see List. For Cylinders to use with above, see List.

	Stroke.	Suction.	Height Stand.	Set Length.	Price.
Fig. 1699 . . . . .	6-inch.	1½-inch.	46 inches.	58 inches.	\$18.00
" 1699 . . . . .	10 "	2 "	50 "	58 "	19.50

Order by this Catalogue Figure Number, stating size wanted.

# “NEW STAR” PUMP STANDARD.

WITH REVOLVING TOP. FOR MANUAL OR WIND POWER.

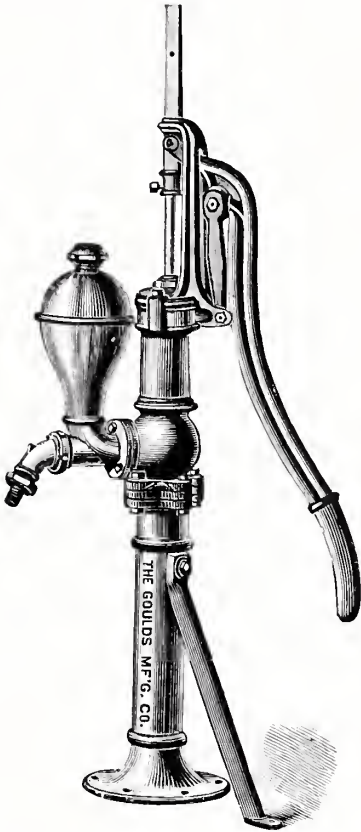


Fig. 1700.

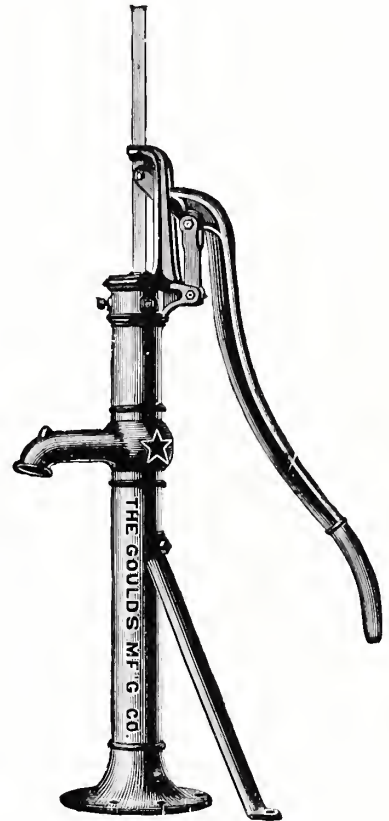


Fig. 1701.

Fig. 1700 represents one of our best forms of Windmill Force Pump Standards, and while not one of the cheapest, possesses features which will commend it to practical well-men.

The intermediate flange can be screwed for any size of pipe up to and including 2½-inch, but always shipped as below unless otherwise ordered. The coupling and tube at the spout is fitted for ¾-inch hose.

Fig. 1701 shows one of our new line of Well Pump Standards with Windmill Tops, consisting of three different sizes. They contain all the advantages suggested by the most recent practice, and will be found to be the best of the kind made by any manufacturer. They are tapped for pipe near the spout, having supporting brace, and are a most suitable standard every way. We can fit the 6-inch or 10-inch stroke Pumps for 1½, 1¾ or 2-inch pipe, as ordered, but always fit as below unless otherwise directed. These tapped for 2-inch pipe have connection for coupling or wood rod.

		Stroke.	Fitted For.	Height.	Price.	With Cock.
Fig. 1700.	Standard, complete . . . . .	6-inch.	1½-inch.	48½ inch.	\$13.50	\$16.00
1700.	“ . . . . .	10 “	2 “	52½ “	15.00	17 50

For Hand Use only, 6-inch stroke, \$12.50 ; with Cock, \$15.00.

	Size No.	Fitted For.	6-inch Stroke.	10-inch Stroke.	Height.
Fig. 1701 . . . . .	3	1½-inch.	\$7.00		43 inches.
“ 1701 . . . . .	4	1¾ “	7.50	9.00	45 “
“ 1701 . . . . .	5	1½ “	8.00	9.50	47 “

Windmill Slides are not furnished unless especially ordered. For Cylinders to use with above, see List. Order by this Catalogue Figure Number, stating size wanted.

NEW WELL PUMP STANDARDS.  
CONTINUED.

SCREWED FOR IRON PIPE.

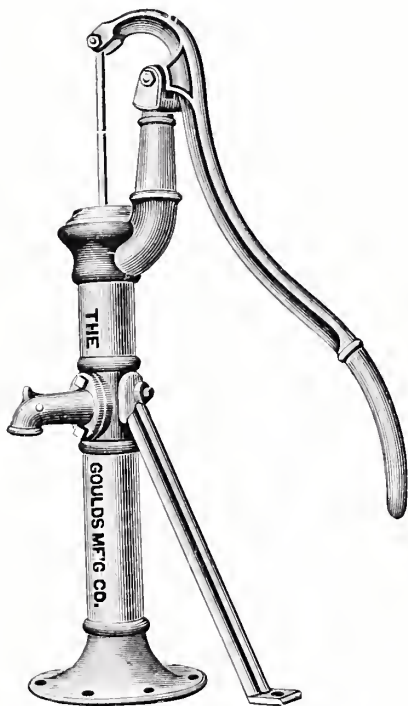


Fig. 1702.

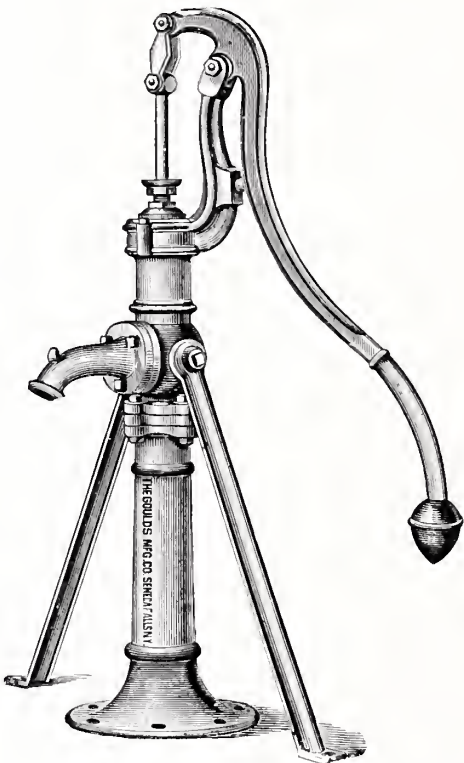


Fig. 1703.

Fig. 1702 represents our New Well Pump Standard for deep and shallow wells. While hardly as heavy in casting as our Figure 1703, it is strong and well made, and presents a graceful appearance. The very strong bearer top and long and heavy lever will adapt this standard for wells of more than ordinary depth, and it is sometimes used over very deep wells. The standard is tapped for wrought iron pipe near the spout.

Fig. 1703 accurately represents our New Deep Well Pump Standard. The manner of construction in two sections, with flange between, is plainly visible, and will be esteemed a very great convenience by those who have to set up these pumps. It is very strong and heavy, and will answer to use on wells from 100 to 300 feet deep. Any size from 1½-inch to 2½-inch pipe can be used with this standard, but always fitted as below unless otherwise ordered.

	Suction.	Stroke.	Height.	Weight.	Price.
Fig. 1702. Standard, complete . . . .	1½-inch.	8-inch.	43½ inches.	58 lbs.	\$6.00
" 1703. " " " " . . . .	1½ "	7 "	51 "	132 "	16.00

Fig. 1702 can be fitted for 1½ or 2-inch pipe if so ordered. For Cylinders to go with above Standards, see List.

Extra Flanges for Fig. 1703 are furnished ; 1½-inch, 50 cents each ; 2 or 2½-inch, 60 cents.

Order by this Catalogue Figure Number, stating size wanted.

# WIND ENGINE FORCE PUMPS.

FOR HAND OR WINDMILL USE.

"PACIFIC" FORCE PUMP ON BASE.

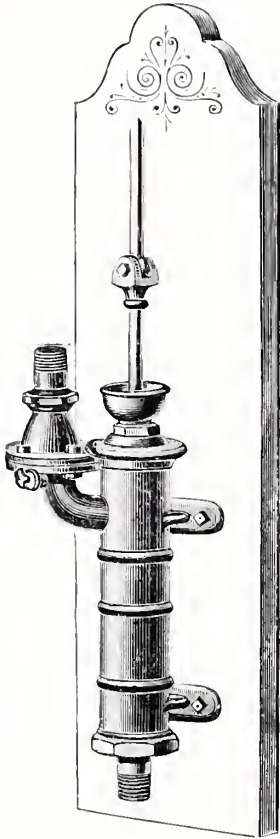


Fig. 1704.

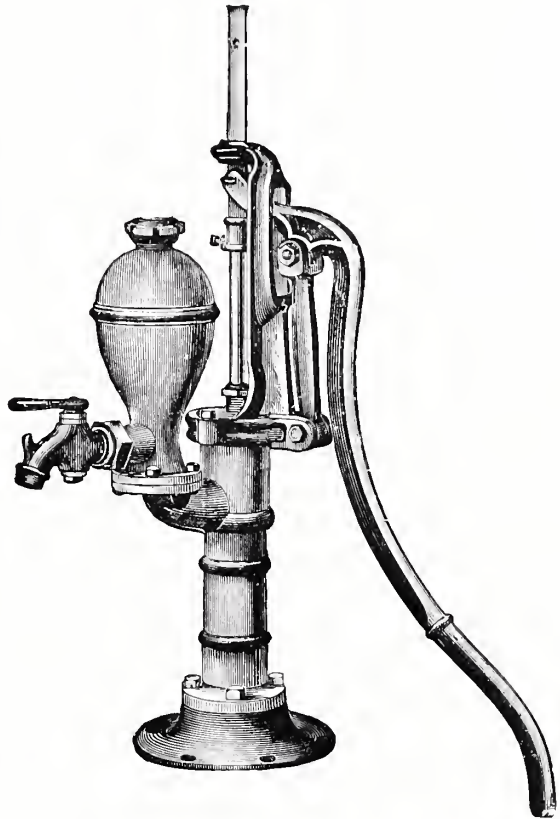


Fig. 1705.

Fig. 1704 shows a very complete and cheap Windmill Force Pump, which can be used in dug wells of any depth, or, in warm climate, over any style of well where water is not more than 25 feet distant. The shorter the suction pipe on any pump can be the easier it will work, and the longer it will last and be less liable to get out of order. Fitted for wrought iron pipe unless otherwise ordered.

We can furnish Fig. 1704 with Air Chambers if desired. Add \$3.00 to List.

When arranged with forked or crotched Rod to connect wood Rod of windmill, add \$1.50 to List.

Fig. 1705 represents our "Pacific" Force Pump on base for hand or windmill use. The pumps have been upon the market for some years, and are preferred above all others in certain localities. They are made in the very best manner, and combine strength with graceful proportions. All are made with brass-cased rods, brass stuffing box, and provided with iron cocks with brass plugs. The height of pump from base to upper guide is from 30 to 35 inches, and the weight from 80 to 130 pounds, according to size. We have these pumps of iron, or with cylinder and piston of brass, or entirely of brass, except the lever, bearer, and air chamber, as per description given below.

Size No.	Diameter Cyl.	Suc. and Dis.	Stroke.		Capacity per Stroke.		Price, Iron.		Price, Brass Cyl.	Price, Brass.	
			Fig. 1704.	Fig. 1705.	Fig. 1704.	Fig. 1705.	Fig. 1704.	Fig. 1705.	Fig. 1705.	Fig. 1704.	Fig. 1705.
0	2 -in.	1 -in.	7-in.	6½-in.	$\frac{1}{16}$	.	\$7.50	.	.	19.00	.
2	2½ "	1½ "	7 "	6 "	$\frac{1}{8}$	$\frac{1}{8}$	9.00	14.50	20.00	20.00	25.50
4	3 "	1¾ "	7 "	6 "	$\frac{3}{16}$	$\frac{1}{4}$	10.50	16.50	21.50	25.00	37.50
6	3½ "	1½ "	7 "	6 "	$\frac{1}{4}$	$\frac{1}{4}$	16.00	24.00	32.00	30.00	46.00
8	4 "	2 "	7 "	6 "	$\frac{3}{8}$	$\frac{1}{2}$	18.00	25.50	38.50	40.00	55.50

Order by this Catalogue Figure Number, stating size wanted.



“STAR” DOUBLE-ACTING FORCE PUMP.

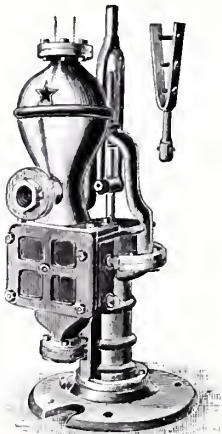


Fig. 1706.

FOR POWER USE.

Fig. 1706 represents our famous “Star” Double-Acting Force Pump, especially designed for the use of distilleries, mills, railroad companies, etc. Briefly described : The pump is exceptionally heavy and strong in casting, the plunger, plunger rod and solid cross-head are of bronze, while the valves (four in number), with their seats, are of the same metal, and grouped under valve cover in front. These valves are of a new type, calculated to develop greatest efficiency, and rubber faced, rendering them perfectly tight and relieving pump of all pounding.

These pumps are built in many sizes, with stub end for welding to connecting rod driven by any power, as steam or wind, working head, counter-shaft, working beam, etc., or with forked rod, at \$2.50 extra List.

Diam. Cyl.	Stroke.	Suction and Discharge.	Gallons per Rev.	Price, Iron.	Price, Brass Lined.	Diam. Cyl.	Stroke.	Suction and Discharge.	Gallons per Rev.	Price, Iron.	Price, Brass Lined.
*3-in.	8-inch.	1½-inch.	½	\$65.00	\$72.00	6-inch.	14-inch.	3-inch.	3½	\$175.00	190.00
*4 “	8 “	2 “	¾	75.00	82.00	6 “	18 “	3 “	4½	225.00	250.00
*5 “	8 “	2½ “	1½	90.00	97.50	7 “	12 “	4 “	4	210.00	235.00
*6 “	8 “	3 “	2	120.00	130.00	7 “	14 “	4 “	4½	225.00	250.00
4 “	10 “	2 “	1	95.00	105.00	7 “	18 “	4 “	6	250.00	280.00
3 “	12 “	1½ “	¾	78.00	90.00	8 “	12 “	5 “	5½	300.00	330.00
4 “	12 “	2 “	1½	101.00	115.00	8 “	15 “	5 “	6½	340.00	375.00
5 “	12 “	2½ “	2	120.00	135.00	8 “	18 “	5 “	7½	400.00	440.00
5 “	15 “	2½ “	2½	135.00	150.00	8 “	24 “	5 “	10½	450.00	500.00
5 “	18 “	2½ “	3	170.00	180.00	. .	. .	. .	. .	. .	. .

\* We can supply these sizes arranged with wood levers for hand use.

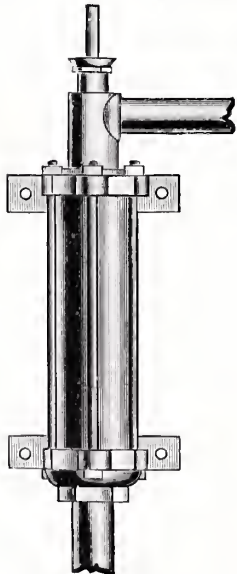


Fig. 1707.

UNION TOP PUMP.

AIR CHAMBER.



Fig. 1708.

Fig. 1707.	2½-inch Cylinder, 8 Stroke.	. .	\$12.00	Fig. 1708.	2½-inch Cylinder, 8 Stroke	. .	\$3.00
“ 1707.	3 “ “ “ 8 “ “ . .	13.50	“ 1708.	3 “ “ “ 8 “ “ . .	3.00		
“ 1707.	3½ “ “ “ 8 “ “ . .	16.50	“ 1708.	3½ “ “ “ 8 “ “ . .	5.00		
“ 1707.	5 “ “ “ 10 “ “ . .	30.00	“ 1708.	5 “ “ “ 10 “ “ . .	12.00		

Order by this Catalogue Figure Number, stating size wanted.

# "EVER READY" IMPROVED SUCTION AND FORCE PUMP.

## FOR WIND OR OTHER POWER.

The best Pump for Wind Engine use on the market.

The construction of this Pump differs somewhat from our Fig. 1713, so well received by the trade. Like that, this never lacks for priming, but it possesses points in addition that will be duly appreciated by those using them. By simply removing the top cap the plunger can be pulled from the cylinder and quickly restored without breaking any pipe connections. A door with bolts, seen at back of cut near bottom, opens the way to the lower valve without tearing the whole pump apart. Cylinder lined with brass.

Made in two sizes, as below.

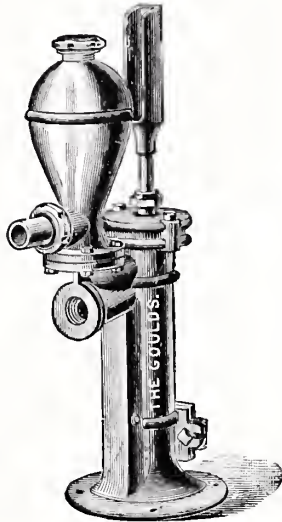


Fig. 1709.

Diameter Cylinder.	Stroke.	Suction.	Discharge.	Gal. per Stroke.	Lift and Force.	Approx. Weight.	Brass Lined.
2½-inch.	8-inch.	1½-inch.	1½-inch.	1	100 ft.	63 lbs.	\$25.00
3 "	8 "	1½ "	1½ "	1	100 "	64 "	25.25
2½ "	12 "	1½ "	1½ "	1	100 "	68 "	27.50
3 "	12 "	1½ "	1½ "	1	100 "	69 "	28.50
3½ "	12 "	2 "	1½ "	1	100 "	112 "	30.00
4 "	12 "	2 "	1½ "	1	100 "	120 "	35.00

\*Depth of Well to which Pump may be adapted or total lift and force from water to point of discharge.

# "PACIFIC" DOUBLE-ACTING SUCTION AND FORCE PUMP.

## FOR DEEP OR SHALLOW WELLS.

Fig. 1710 represents our "New Pacific" Double-Acting Force Pump, arranged for other than manual power. This Pump may be used over wells of any description, and placed any reasonable distance down, in open or dug wells. It embodies all the good features of a Pump of this class, and will be a valuable addition to our line of these goods. The suction pipe screws into a flange underneath the valve box and where there is no danger of freezing, a check valve at its extremity is recommended. Prices include either a forked rod or wood rod or harp connection for iron rod.

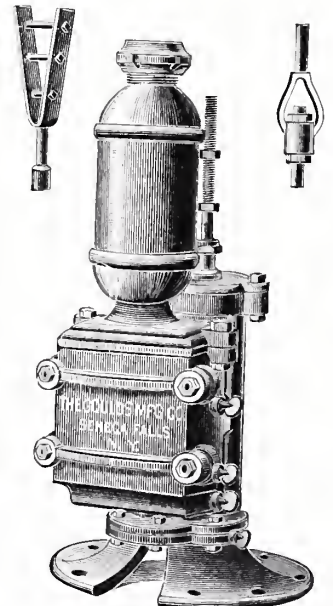


Fig. 1710.

Size No.	Diameter Cylinder.	Suction and Discharge.	Stroke.	Capacity Stroke.	Price.
2	2½-inch.	1½-inch.	6-inch.	¼-gallon.	\$25.00
4	3 "	1½ "	6 "	½ "	30.00
6	3½ "	2 "	6 "	¾ "	37.50
8	4 "	2 "	6 "	1 "	45.00

Order by this Catalogue Figure Number, stating size wanted.

# NEW "SIPHON" SUCTION AND FORCE PUMP.

WIND ENGINE WORKING HEADS.

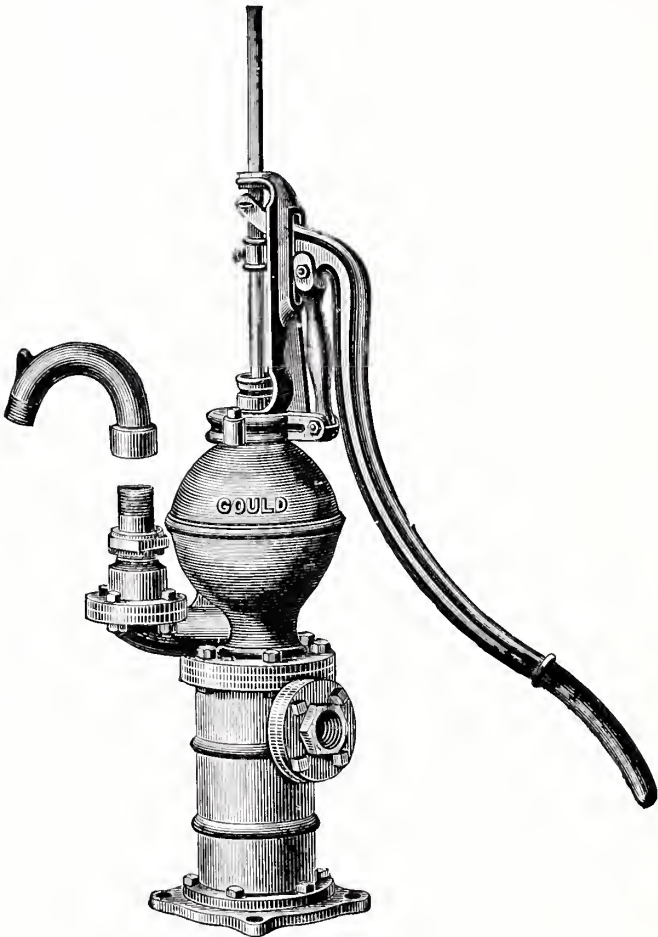


Fig. 1711.

Fig. 1711 is our "Siphon" Working Barrel, described on page 563, arranged with windmill top for either hand or windmill power. Hook Spouts only sent when ordered, and then at an extra price.

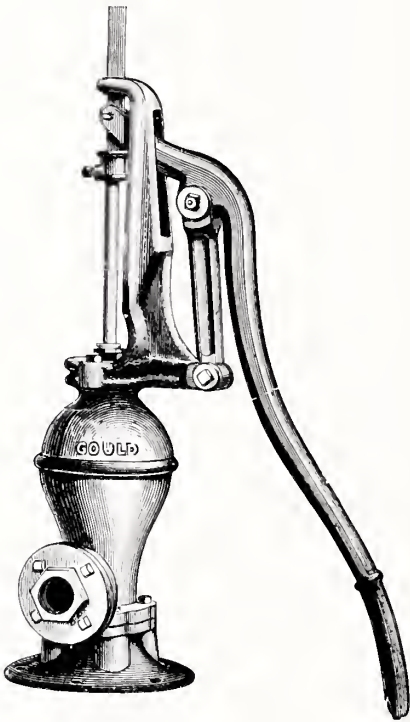


Fig. 1712.

Diam. Inner Cyl.	Suction and Dis.	Stroke by Hand.	Stroke by Power.	Gallons per Stroke.	Brass Inner Cylinder. Price.	Diam. Inner Cyl.	Suction and Dis.	Stroke by Hand.	Stroke by Power.	Gallons per Stroke.	Brass Inner Cylinder. Price.
2½-in.	1½-in.	6-in.	8½-in.	1 1/4	\$28.50	4-in.	2-in.	10-in.	10-in.	3 1/2	\$37.50
3 " "	1½ " "	6 " "	8 1/2 " "	1 3/4	28.75	4½ " "	2½ " "	10 " "	10 " "	4	50.00
3½ " "	2 " "	6 " "	8 1/2 " "	2	31.00	5 " "	2½ " "	10 " "	10 " "	4 1/2	55.00
4 " "	2 " "	6 " "	8 1/2 " "	2 1/4	34.50	5½ " "	3 " "	10 " "	10 " "	5	61.00
4½ " "	2 " "	10 " "	10 " "	2 3/4	33.00	6 " "	3 " "	10 " "	10 " "	5 1/2	70.00

Fig. 1712 represents a Wind Engine working head with revolving top and sectional base. This working head is exceptionally strong and heavy, and in its different forms can be used in almost any place for forcing water at a distance from mill. Between the air chamber and the base is inserted a flange, which can be fitted for either 1, 1½, 1¾, 2 or 2½-inch suction pipe, as ordered. We can put on a forked rod for attaching to wood rod of windmill, if so ordered, at our usual extra price for same. Windmill slides are not furnished unless especially ordered.

Fig. 1712.	Suc. and Dis., 1½-in.	6-in. Stroke	\$13.00
" 1712.	" " 1½ " 10 "	" "	14.50
" 1712.	Pitman and Stub End without Handle, Suc. and Dis., 1½-in.	6-in. Stroke	15.00
" 1712.	" " " " 1½ " 10 "	" "	16.50

Forked rod extra, \$1.50. Order by this Catalogue Figure Number, stating size wanted.

# NEW "SIPHON" WORKING BARREL PUMP.

FOR DEEP OR SHALLOW WELLS.

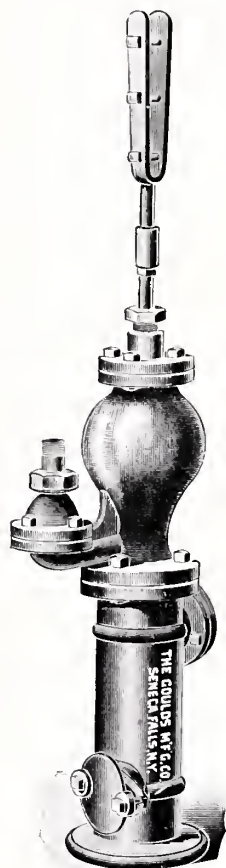


Fig. 1713.

This cut shows our "Siphon" Self-Priming Working Barrel for deep or shallow wells. The water enters through the suction opening, located above both the upper and lower valves, into the reservoir, or outer cylinder, filling it with water to that point, and below which the water cannot recede. Into this body of water the inner cylinder, provided with brass plunger, etc., is suspended, leaving suitable space between inner and outer walls and at bottom: the effect of which is, the pump is always primed and ready for instant action; the valves are always under water and wet, and not liable to decay.

It is very important that the inner cylinder should be rigidly secured in its place, and to accomplish this the barrel and flange are cast in one piece, and interpose it between the air chamber and reservoir barrel flanges, bolting the three together firmly, as shown, making it a device that will successfully resist the jerking and heaving caused by the varying speed of a windmill.

The construction of this cylinder has been reduced to perfection, and we can pronounce it mechanical in all respects, and adapted to the purpose for which it is used. Below we give sizes and prices.

Pumps arranged with forked rod or harp connection to connect to rod of Windmill, we add \$1.50 to List on sizes up to 4-inch, and \$2.50 extra on the other sizes.

	Diam. Inner Cyl.	Stroke.	Sue. and Dis.	Gal. per Stroke.	*Lift and Force.	Approx. Weight.	BRASS INNER CYL.
							Price.
Fig. 1713 . . . . .	2 in.	7-in.	1½-in.	½	100 ft.	79 lbs.	\$25.00
" 1713 . . . . .	2½ "	7 "	1½ "	¾	100 "	79 "	25.00
" 1713 . . . . .	3 "	7 "	1½ "	1	100 "	79 "	25.00
" 1713 . . . . .	3½ "	9 "	2 "	1¼	100 "	81 "	25.25
" 1713 . . . . .	4 "	9 "	2 "	1½	100 "	108 "	27.25
" 1713 . . . . .	4½ "	10 "	2 "	1¾	100 "	113 "	30.50
" 1713 . . . . .	5 "	10 "	2½ "	2	100 "	113 "	40.00
" 1713 . . . . .	5½ "	10 "	2½ "	2½	75 "	267 "	45.00
" 1713 . . . . .	6 "	10 "	3 "	3	75 "	274 "	50.00
" 1713 . . . . .	6½ "	12 "	3½ "	3½	75 "	276 "	64.00
" 1713 . . . . .	7 "	12 "	3½ "	4	75 "	271 "	54.00
" 1713 . . . . .	8 "	12 "	4 "	4½	75 "	280 "	60.00
" 1713 . . . . .	9 "	12 "	4½ "	5	75 "	300 "	78.00

\* Depth of well to which Pump may be adapted or total lift and force from water to point of discharge.

Order by this Catalogue Figure Number, stating size wanted.



# DOUBLE-ACTING SUCTION AND FORCE PUMPS.

For Hand or Power Use.

Fig. 1714 represents our new style Double-Acting Force Pump, with pitman, guide, guide rod, etc., etc., mounted on plank for house use. As the cut indicates, the Pump is strongly and compactly built, the valves all being under one case, in front, with suction pipe underneath. These valves are made of bronze, rubber-faced, and we can confidently say this Pump is vastly more reliable and efficient than any other Pump of its class in the market.

Made in 4 sizes. Stroke 6 inches.

Fig. 1714, without brake for hand use, is furnished with stub end for power connection. Sizes and prices same as Fig. 1714.

Fig 1715 accurately represents one of our well-known Double-Acting Force Pumps mounted on plank, with brass piston rod, for house use. In explanation of a Double-Acting Pump would say that they lift and force water with both the upward and downward motions of the lever, giving double the quantity of water that a Single-Acting Pump of equal size would, and requiring a commensurate outlay of power. They can be worked either right or left-handed, with our reversible fulcrum, and lead or wrought iron pipe can be used on suction or discharge, but are always fitted for wrought iron pipe unless otherwise ordered. Can furnish eight sizes in iron or brass.

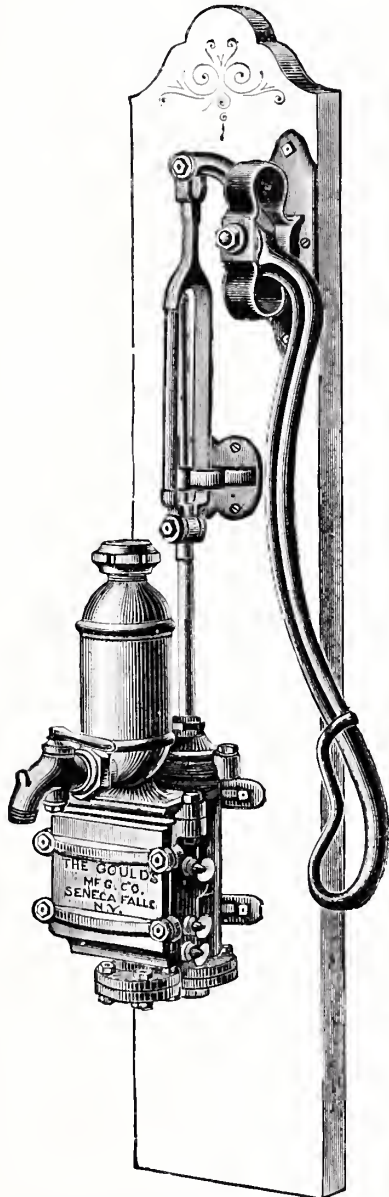


Fig. 1714.

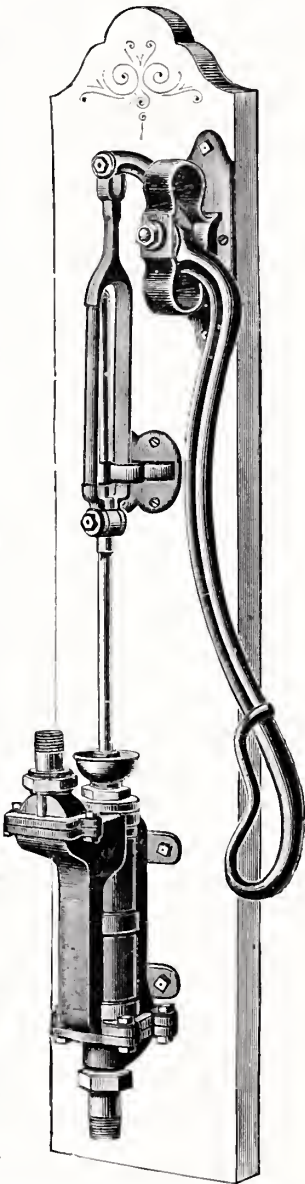


Fig. 1715.

When Cock is not furnished, deduct \$2.50 from List.

Figure Number.	Trade Number.	Diameter Cylinder, Inches.	Suc. and Discharge, Inches.	Capacity per Stroke, Gallons.	Price.
1714	2	2½	1½	4	\$29.00
1714	4	3	1½	4	34.00
1714	6	3½	1½	4	41.50
1714	8	4	2	2	49.00

Fig. No.	Size No.	Diam. Cylind.	Sue.	Dis.	Stroke	Gal. p'r Rev.	Lift and Force.	Approx. Weight.	Iron.	Brass.	WITH AIR CHAMBER.		WITH AIR CHAMBER AND COCK.	
											Iron.	Brass.	Iron.	Brass.
1715	0	2 in.	1½ in.	1½ in.	7 in.	1	100 ft.	86 lbs.	\$13.50	26.00	\$15.50	28.00	\$18.00	33.00
1715	1	2½ "	1½ "	1½ "	7 "	1	75 "	87 "	14.00	28.00	16.00	30.00	18.50	35.00
1715	2	2½ "	1½ "	1½ "	7 "	1	75 "	88 "	17.00	38.00	19.50	40.00	22.00	45.00
1715	3	2½ "	1½ "	1½ "	7 "	1	75 "	91 "	19.00	45.00	21.00	47.00	23.50	52.00
1715	4	3 "	1½ "	1½ "	7 "	1	75 "	95 "	21.00	52.00	23.00	54.00	25.50	59.00
1715	5	3½ "	1½ "	1½ "	7 "	1	50 "	170 "	25.00	69.50	28.50	73.00	31.00	78.00
1715	6	3½ "	1½ "	1½ "	7 "	1	50 "	170 "	25.00	69.50	28.50	73.00	31.00	78.00
1715	8	4 "	2 "	2 "	7 "	1	50 "	175 "	37.00	94.00	42.00	98.00	45.00	103.00
1715	10	4½ "	2½ "	2½ "	7 "	1	35 "	183 "	50.00	136.00	55.00	141.00	58.00	146.00

Order by this Catalogne Figure Number, stating size wanted.

# HOUSE FORCE PUMP, ON PLANK.

WITH CHECK VALVE AND AIR CHAMBER. RIGHT AND LEFT-HANDED.

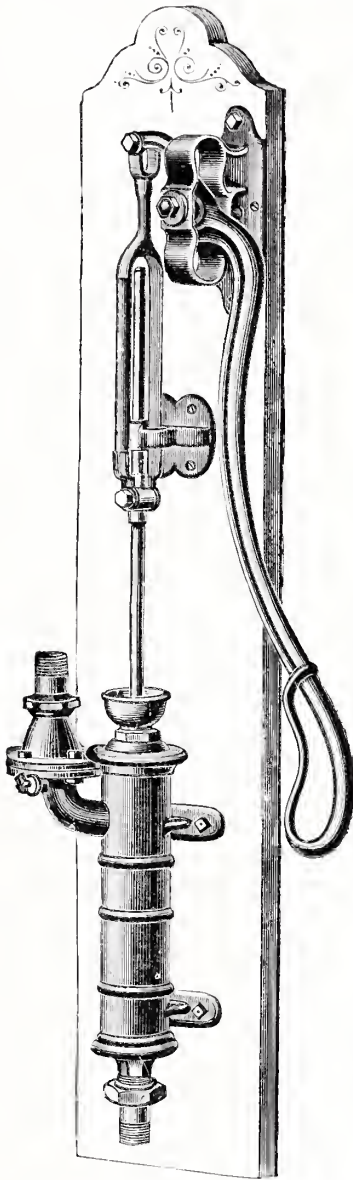


Fig. 1716.

Fig. 1716 represents our Single-Acting Suction and Force Pump with brass piston rods, pitman and guide, mounted on a handsomely ornamented plank for indoor use, and can be made either right or left-handed.

It is generally employed for lifting water from wells or cisterns and forcing it up into a more elevated part of the house, for bathrooms, filling tanks, etc. Plumbers wishing to attach copper air chambers usually select this style.

The check valve can be removed and an air chamber substituted without extra fitting.

We have six sizes of this Pump, of iron, or with Cylinder and Piston of brass, or entirely of brass, except the lever, fulcrum and check valve, as per description given below.

The Iron and Brass Cylinder Pumps are fitted for iron pipe and the Brass Pumps for lead pipe, unless otherwise ordered.

Fig. 1717 represents our House Force Pump with air chamber and cock on plank. The good qualities of the Pumps previously described prevail in this one, but this has the additional convenience of a faucet through which water can be drawn at the Pump. The faucet has threads cut on the outlet where hose can be coupled and water forced through it, which, in case of fire, might often prove invaluable.

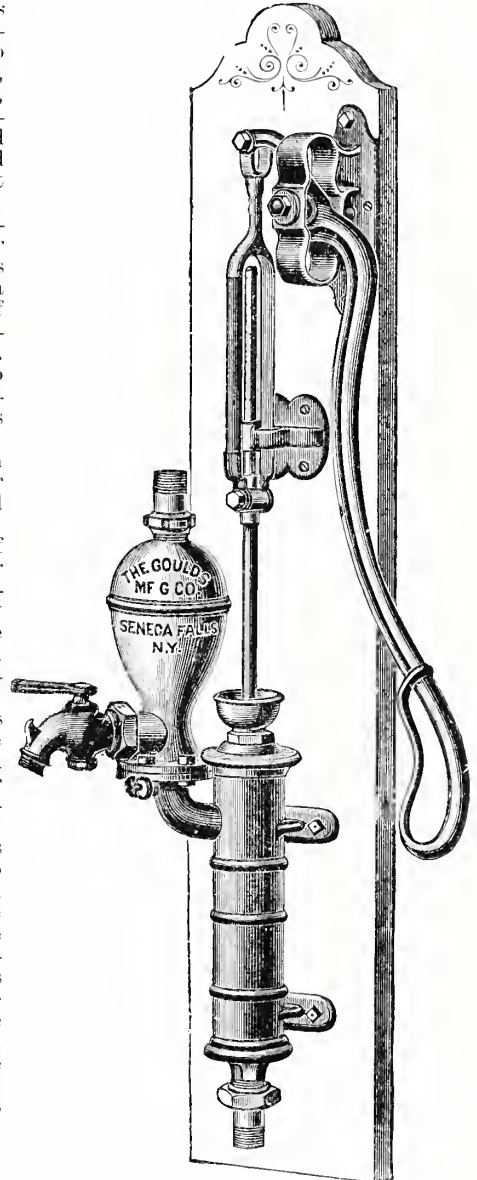


Fig. 1717.

By taking bolts out of flanges of air chamber it can be turned around to almost any position. A flange joint is much preferable to a screw joint.

No.	Diameter Cylinder.	Suction and Discharge.	Stroke.	Capacity Stroke.	Iron.		Brass Cylinder.		Brass.	
					Fig. 1716	Fig. 1717	Fig. 1716	Fig. 1717	Fig. 1716	Fig. 1717
0	2 -inch.	1 -inch.	7-inch.	$\frac{1}{10}$ -gallon.	\$14.00	18.00	19.00	27.00	26.00	35.00
2	2 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "	7 "	$\frac{1}{8}$ "	15.00	19.00	20.00	28.00	30.00	37.00
3	2 $\frac{3}{4}$ "	1 $\frac{3}{4}$ "	7 "	$\frac{1}{6}$ "	15.75	20.00	21.00	29.00	33.00	40.00
4	3 "	1 $\frac{1}{2}$ "	7 "	$\frac{1}{4}$ "	16.50	22.00	22.00	30.00	35.00	42.00
5	3 $\frac{1}{4}$ "	1 $\frac{3}{8}$ "	7 "	$\frac{3}{8}$ "	20.00	26.00	25.00	33.00	40.00	49.00
6	3 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	7 "	$\frac{3}{10}$ "	22.00	28.50	32.00	37.50	45.00	56.00

Order by this Catalogue Figure Number, stating size wanted.



HOUSE FORCE OR LIFT PUMPS.

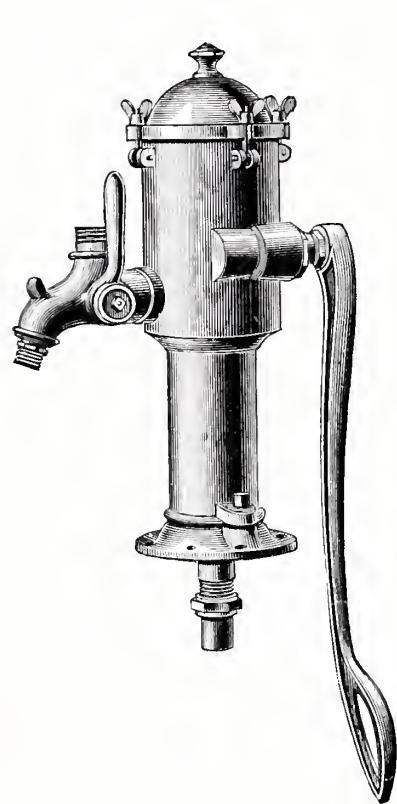


Fig. 1718.

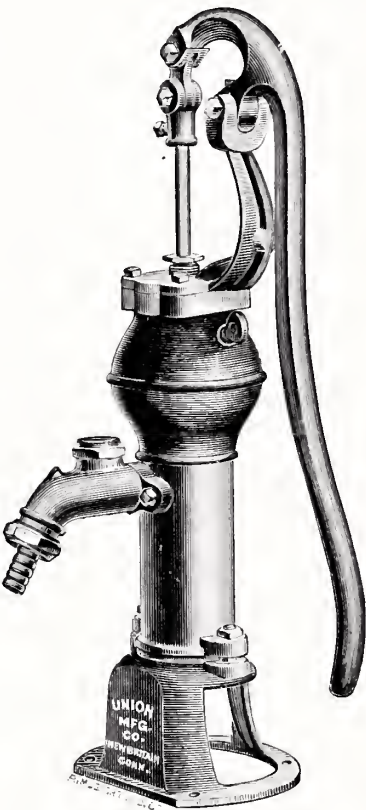


Fig. 1719.

Fig. 1718 represents the Centennial Force Pump, which is also known as the People's Pump, also as Pendulum Pump.

The Plunger rod of this pump, instead of working through the top, is operated by a rocking shaft running through the side, to the outer edge of which is attached the handle. The top is closed with a lid secured by thumb screws, forming an air chamber, rendering it valuable for throwing water for fire purposes, washing windows and carriages, watering lawns, and forcing up into tanks.

By unscrewing the vent plug on top of the lid, it discharges evenly and smoothly as a lift pump. The cylinder swivels round on the bottom flange so that the spout can be placed in any direction. It is arranged for two discharge pipes or hose running in different directions.

The water may be let back to avoid freezing, by raising the handle. The ease with which any part can be reached for repairs, renders it very suitable for farmers, nurseries and home use. By substituting a crank and shackle in place of brake, it makes an excellent pump for windmills. It has a brass seat for the lower valve, and is adapted for either lead or iron pipes.

						With Cock in Spout.	
						Iron.	Brass Cyl.
Fig. 1718.	No. 0,	of 2½-inch Bore,	suitable for 1-inch Pipe,	each .	\$10.00	14.00	12.50 16.50
" 1718.	" 1	" 3¼	" 1¼	" .	12.00	18.00	15.00 21.00
" 1718.	" 2	" 4	" 1½	" .	20.00	28.00	25.00 33.00

Can furnish Fig. 1718 with cock in the spout if desired, also with set length.

Fig. 1719 represents a cheap and very simple force pump, and as the cut represents the pump so well, a description is hardly necessary. The top flange, holding the stuffing box, can be changed so as to make pump right or left-handed. Made only in one size.

Fig. 1719. 3½-inch Cylinder fitted for 1¼ or 1½-inch Pipe. . . . . \$10.00

Order by this Catalogue Figure Number, stating size wanted.

# ANTI-FREEZING IRON FORCE PUMP, WITH COCK.

WITH THREE FEET WROUGHT IRON CONNECTING PIPE.

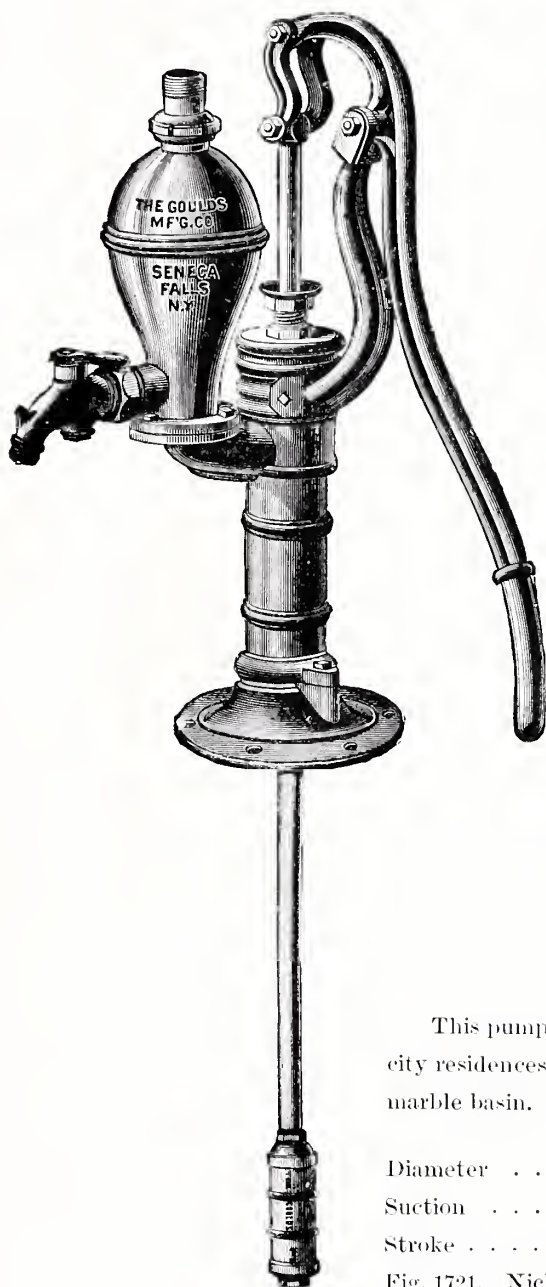


Fig. 1720.

These are identical with Fig. 1723, described on the following page, in form and style, and have in addition a three feet gas pipe set length. In the working cylinder are the valves, out of reach of frost, which make these pumps available in exposed locations.

Water can be conducted in two directions by means of the cock furnished with this pump.

- Fig. 1720. No. 2, 2½-inch Bore, 6-inch Stroke,  
for 1½-inch Pipe . . . . . \$16.00
- " 1720. No. 10, 3-inch Bore, 3-inch Stroke,  
for 1½-inch Pipe . . . . . 18.00

## ALL BRASS NICKELED BASIN PUMP.

WITH BOLTS FOR SLAB.

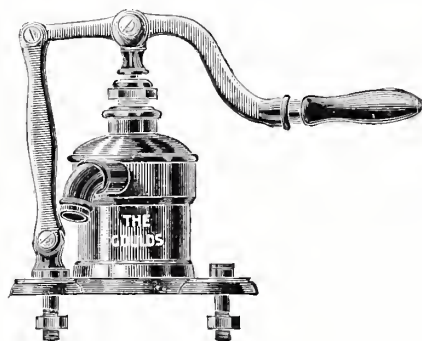


Fig. 1721.

This pump is designed for railroad car service, country and city residences, or any place where water is wanted for sink or marble basin. All parts are highly finished and nickeled.

- Diameter . . . . . 3-in.
- Suction . . . . . 1-in.
- Stroke . . . . . 1½-in.

Fig. 1721. Nickeled . . . . . \$14.00

Order by this Catalogue Figure Number, stating size wanted.



# IMPROVED HAND FORCE PUMP, ON BASE.

UPPER DISCHARGE, AND WITH COCK.

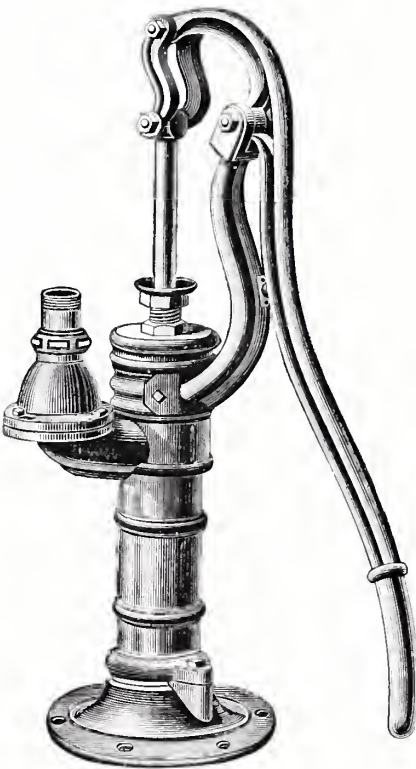


Fig. 1722.

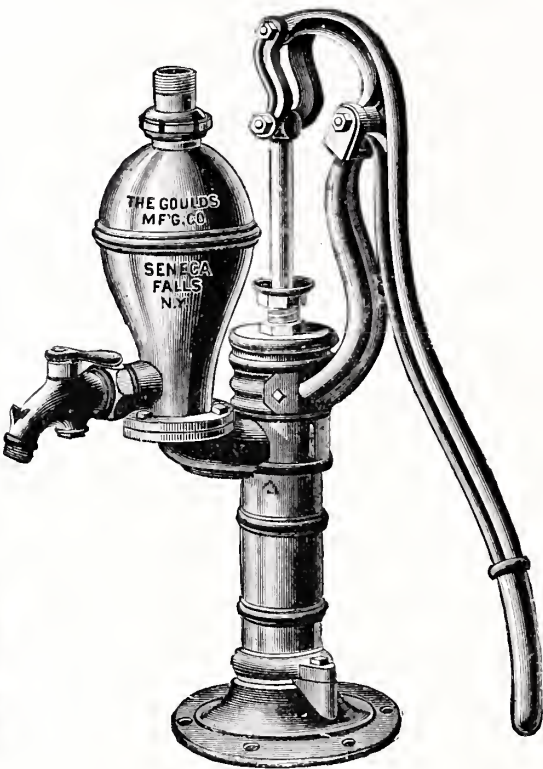


Fig. 1723.

Fig. 1722 represents our Hand Force Pump on base with upper check valve discharge. The height of pump from base to lever top is from 30 to 35 inches, and the weight from 34 to 70 lbs., according to size.

We make this style of pump of iron, or cylinder and piston of brass, or all brass except the lever, fulcrum and base, as per description given below.

Fig. 1723 represents our Hand Force Pump on base with double discharge air chamber and cock. The height of pump from base to lever top is from 31 to 35 inches, and the weight from 60 to 95 lbs., according to size.

We make this style of pump of iron, or with cylinder and piston of brass, or entirely of brass, except lever, fulcrum, base and air chamber. All pumps are provided with an iron cock with brass plug, unless otherwise ordered.

Size No.	Diameter Cylinder.	Suc. and Discharge.	Stroke.	Capacity per Stroke.	Price, Iron.		Price, Brass Cyl.		Brass.	
					Fig. 1722.	Fig. 1723.	Fig. 1722.	Fig. 1723.	Fig. 1722.	Fig. 1723.
0	2 -inch.	1 -inch.	6 -inch.	$\frac{1}{2}$ -gal.	\$8.00	.	13.50	.	20.00	.
2	2 $\frac{1}{2}$ "	1 $\frac{1}{4}$ "	6 "	$\frac{3}{4}$ "	9.50	12.50	14.00	18.00	21.00	23.50
4	3 "	1 $\frac{3}{4}$ "	6 "	"	11.00	14.50	15.00	19.50	32.00	35.00
6	3 $\frac{1}{2}$ "	1 $\frac{1}{2}$ "	7 $\frac{1}{4}$ "	$\frac{1}{2}$ "	17.00	21.50	24.00	29.50	38.00	43.50
8	4 "	2 "	7 $\frac{1}{2}$ "	$\frac{3}{4}$ "	18.00	22.50	30.00	35.50	47.00	52.00

Order by this Catalogue Figure Number, stating size wanted.

# IMPROVED HAND FORCE PUMP, ON PLANK.

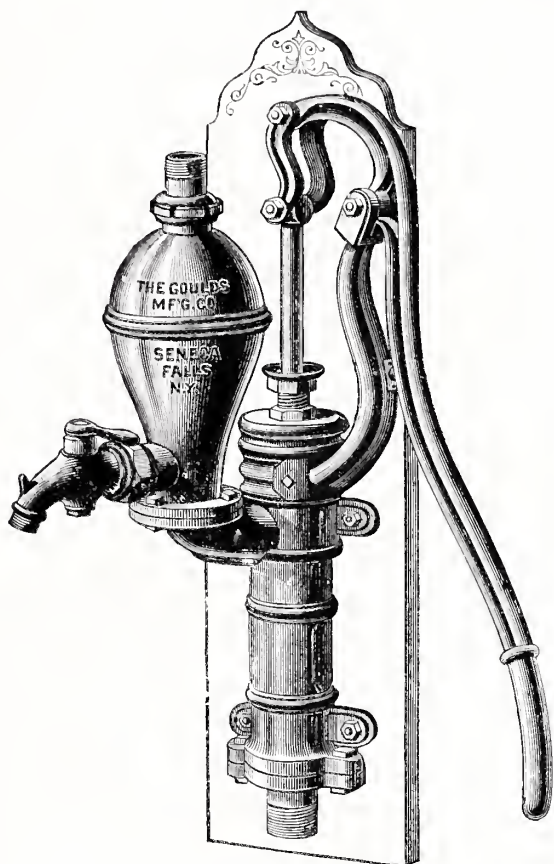


Fig. 1724.

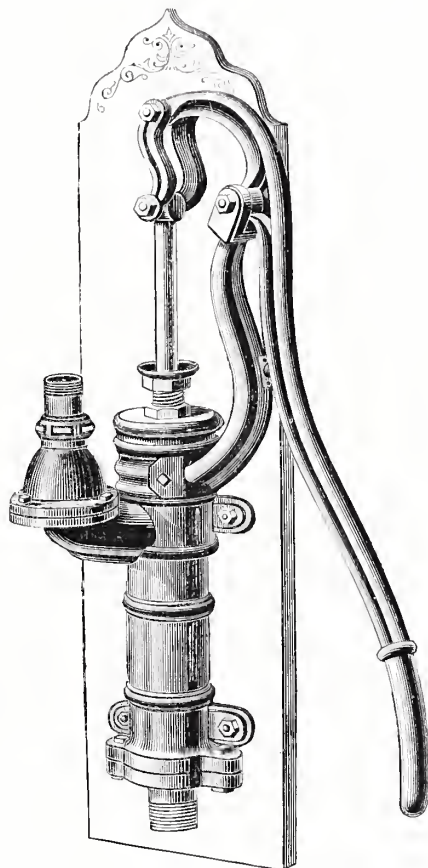


Fig. 1725.

Fig. 1724 is a Suction and Force Pump with Cock, Revolving Brake, Air Chamber and Brass Piston Rod, and represents our Hand Force Pump on plank, with double discharge air chamber and cock.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass except the lever, fulcrum and air chamber. All Pumps are provided with an iron cock with brass plug, unless otherwise ordered.

Cocks on Nos. 2 and 4 Pumps are threaded for 1-inch, and on Nos. 6 and 8 Pumps for 1½-inch hose couplings.

Fig. 1725 represents our Hand Force Pump on plank, with upper check valve discharge.

We make this style of Pump of iron, or with cylinder and piston of brass, or entirely of brass except the lever and fulcrum, as per description given below.

No.	Diam. Cylinder	Sue. and Dis.	Stroke.	Gal. per Stroke.	*Lift and Force.	Approx. Weight.	IRON.		BRASS CYL.		BRASS.	
							Fig. 1724.	Fig. 1725.	Fig. 1724.	Fig. 1725.	Fig. 1724.	Fig. 1725.
0	2 -in.	1 -in.	6 -in.	1½	60 ft.	47 lbs.	.	8 00	.	13.50	.	20.00
2	2½ "	1½ "	6 "	2	60 "	54 "	\$12 50	9 50	18.00	14.00	23 50	21.00
4	3 "	1¾ "	6 "	2½	60 "	62 "	14 50	11 00	19 50	15.00	35 00	32.00
6	3½ "	1½ "	7½ "	3	40 "	82 "	21 50	17 00	29 50	24 00	43 50	38.00
8	4 "	2 "	7½ "	3½	40 "	90 "	22 50	18 00	35 50	30.00	52 50	47.00

\*Total lift and force from water to point of discharge.

Order by this Catalogue Figure Number, stating size wanted.

# TWO-CYLINDER BRASS FORCE PUMPS.

FOR HOUSE, SHIP AND FACTORY USE.

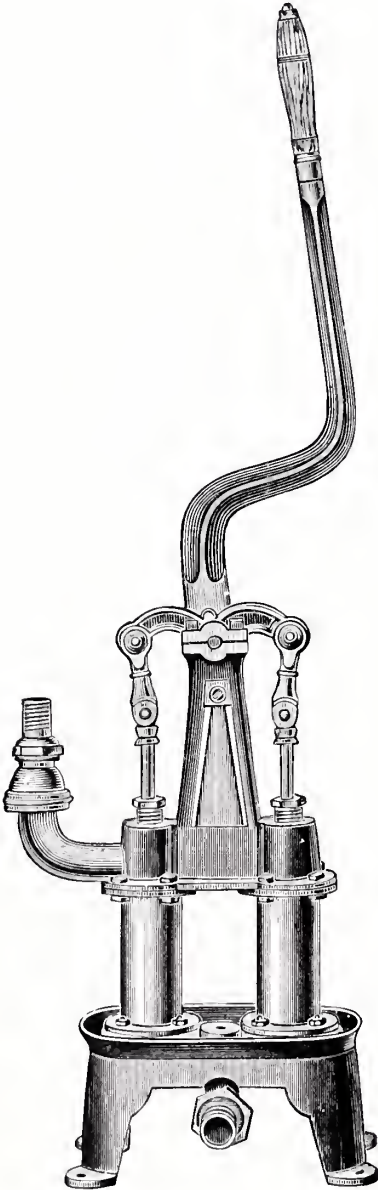


Fig. 1726.

The accompanying illustration represents a Two-Cylinder Pump, which is practically the same as a Double-Acting Pump. The cylinders, air chamber, piston rods, and all other working parts of the Pump are made of brass. As may be seen by examination of the cut, the lever is worked horizontally, the cylinders being vertical and working alternately.

This Pump, for house use, can be placed under the sink, out of the way; and in many sections of the country it is a favorite pump for domestic purposes.

To prevent freezing, Drip-Cocks are provided, so that water can be drained off in cold weather, when the Pump is not in use.

There are three sizes of the Two-Cylinder Pump, as listed below.

\*Fitted for either Lead or Iron Pipe, as ordered. Fitted for other size Suction and Discharge Pipe, but always as listed, unless otherwise specified.

No.	Size Cylinder.	*Suction Fitted For.	*Discharge Fitted For.	Capacity per Stroke.	Price.
1	2 -inch.	1½-inch Pipe.	1 -inch Pipe.	$\frac{2}{10}$ gallon.	\$25.00
2	2½ " "	1¾ " "	1¼ " "	$\frac{3}{16}$ " "	35.00
3	3 " "	1½ " "	1½ " "	$\frac{1}{2}$ " "	70.00

Order by this Catalogue Figure Number, stating size wanted.



# VERTICAL SUBMERGED CENTRIFUGAL PUMP.

For irrigating and draining sugar and rice plantations; for contractors' use, draining sewers, coffer dams, wheel and lock pits, excavations, etc., etc.; for sugar-houses, bleacheries and dye works, oil mills, tanneries, breweries, distilleries, starch factories, etc.

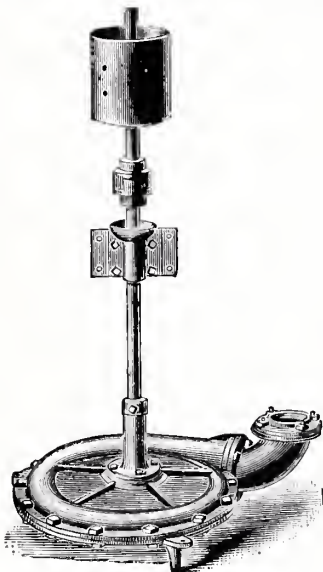


Fig. 1727.

Fig. 1727 represents an Improved Vertical or Submerged Centrifugal Pump, adapted for any use where submerged pumps can be placed. These Pumps are constructed without valves, hence will raise water containing sand, gravel, clay, coal, tan-bark or other impurities. They will also pump still slop, brewers' mash, and pulp, as readily as clear water, and will not clog or get foul.

NUMBER	1½	1¾	2	2½	3	3½	4	5	6	8	10	12	15	18
Iron . . .	\$30.00	40.00	60.00	70.00	75.00	95.00	110.00	140.00	170.00	265.00	330.00	420.00	600.00	850.00
Brass . . .	55.00	90.00	110.00	135.00	150.00	200.00	240.00	315.00	360.00	...	...	...	...	...

TABLE SHOWING NUMBER OF REVOLUTIONS PER MINUTE NECESSARY AND POWER REQUIRED TO RAISE WATER TO DIFFERENT HEIGHTS WITH DIFFERENT SIZES OF PUMPS.

No.	Approx. Capacity per Min. Gallons.	H. P. Required per Foot Lift.	Dis. Pipe.	Suction Pipe.	Diam. of Pulley	Face of Pulley.	REVOLUTIONS PER MINUTE.					APPROX. WEIGHT, LBS.		
							6 Ft.	10 Ft.	16 Ft.	20 Ft.	25 Ft.	Fig. 1727.	Fig. 1728.	Fig. 1729.
1½	100	.062	1½-in.	2-in.	5-in.	4-in.	850	1000	1600	1750	1900	60	120	150
1¾	200	.085	1¾ " "	2 " "	6 " "	6 " "	425	680	825	900	975	100	175	210
2	300	.126	2 " "	2½ " "	7 " "	8 " "	400	525	650	720	780	135	225	350
2½	450	.190	2½ " "	3 " "	7 " "	8 " "	375	475	600	675	720	160	290	390
3	650	.270	3 " "	4½ " "	7 " "	8 " "	350	425	500	550	650	200	325	420
3½	1000	.425	3½ " "	5 " "	10 " "	10 " "	325	410	475	525	625	300	400	480
4	1250	.504	4 " "	5 " "	10 " "	10 " "	275	350	459	500	600	335	450	540
5	1850	.765	5 " "	6 " "	10 " "	10 " "	260	330	430	480	560	450	510	590
6	2650	1.10	6 " "	8 " "	12 " "	12 " "	209	240	360	420	490	650	900	1100
8	4750	1.90	8 " "	10 " "	15 " "	12 " "	185	225	310	360	390	1095	1440	1775
10	7500	3.14	10 " "	12 " "	18 " "	14 " "	166	220	285	320	360	1300	1680	Do not use
12	10000	4.	12 " "	14 " "	20 " "	14 " "	160	210	246	268	285	1450	1820	Hand
15	16000	6.75	15 " "	18 " "	30 " "	18 " "	100	148	208	220	236	2750	3800	Primer
18	22000	9.65	18 " "	24 " "	40 " "	24 " "	80	110	148	155	168	5000	6500	on larg- er sizes.

Order by this Catalogue Figure Number, stating size wanted.



HORIZONTAL CENTRIFUGAL PUMPS.

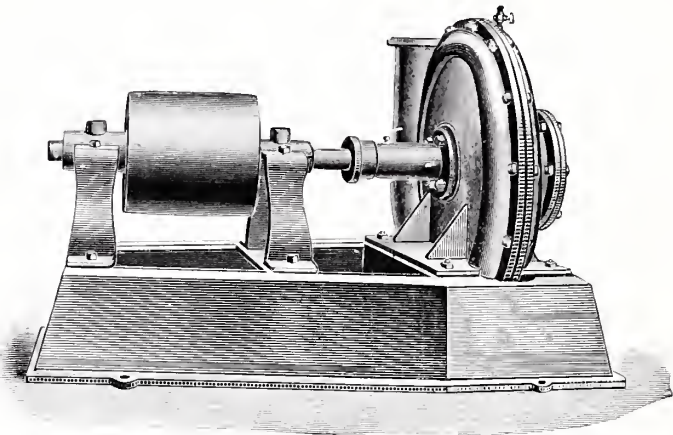


Fig. 1728.

Fig. 1728; represents our improved Horizontal Centrifugal Pump, which is the Vertical Pump resting on its edge securely fastened to an iron bed frame by flanges cast on each shell. This Pump must be set so that water will flow into it, unless a foot valve is used in bottom of induction pipe, in which case it may be set to not exceed twenty-five feet above the water.

This Pump, with foot valve at bottom of suction pipe, is chiefly used for irrigation and draining.

Fig. 1729 is the same as the Fig. 1728, with the addition of a Primer for priming by hand. This style is used where Pump sets above water. Our new Hand Primer is so arranged that there is but one valve; this valve can be reached in a moment by taking out two cap screws and removing plate. We make Power Primers for larger pumps. Pumps built to run Right or Left-handed as desired. In ordering, state whether Pump should run Right or Left-handed. Pumps shown in cut run Right-handed.

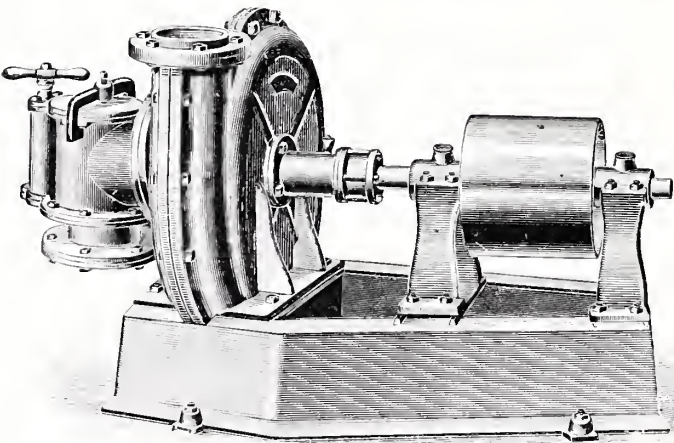


Fig. 1729.

No. . . . .	1½	1¾	2	2½	3	3½	4	5	6	8	10	12	15	18
Fig. 1728 Iron	\$35.00	50.00	70.00	80.00	95.00	110.00	130.00	165.00	200.00	310.00	395.00	500.00	710.00	1000.00
" 1728 Brass	65.00	100.00	125.00	150.00	175.00	230.00	275.00	350.00	410.00	. . .	. . .	. . .	. . .	. . .
" 1729 Iron	45.00	60.00	85.00	95.00	110.00	135.00	155.00	195.00	240.00	375.00	470.00	600.00	850.00	1250.00
" 1729 Brass	80.00	120.00	150.00	175.00	210.00	270.00	330.00	420.00	495.00	. . .	. . .	. . .	. . .	. . .

FLANGED FOOT VALVES.

NUMBER . . .	1½	1¾	2	2½	3	3½	4	5	6	8	10	12	15	18
Iron . . . . .	\$5.00	6.00	7.00	8.00	9.00	11.00	12.00	15.00	20.00	30.00	40.00	50.00	75.00	110.00
Brass . . . . .	8.00	9.00	12.00	15.00	18.00	21.00	25.00	30.00	40.00	. . .	. . .	. . .	. . .	. . .

See page 571 for Table of Speeds, Weights, etc.  
Order by this Catalogue Figure Number, stating size wanted.

# OPEN TOP TWO-CYLINDER FORCE PUMP.

FOR STEAMBOATS, FACTORIES, WHARVES, ETC. WITH WOOD LEVERS.

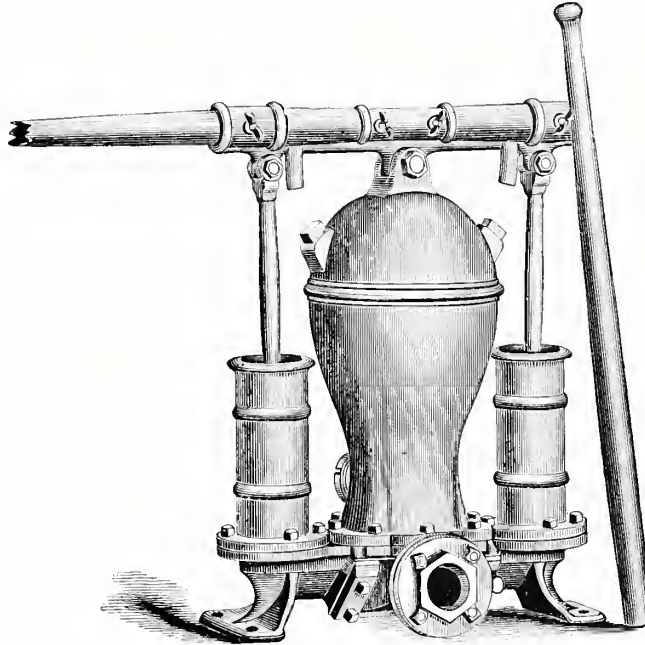


Fig. 1730.

Fig. 1730 gives an accurate representation of a powerful Two-Cylinder Pump, which is double-acting in operation, and is compact in build and simple in construction. For many years these Pumps have been used among the ship-builders of the country in fitting out vessels, and give universal satisfaction. These Pumps are arranged to be worked either by wood levers, which go with each Pump, or by power, as desired. Rubber buffers on each side of air chamber receive the blow of the lever beam in its downward stroke.

The suction plate is always fitted for wrought iron pipe, and the discharge opening has a brass tube for wiring on hose. Can fit both ends for wrought iron pipe, or both ends for hose if ordered.

The sizes of suction and discharge attachments could be varied if necessary.

No.	Diameter Cylinders.	Suction.	Discharge.	Stroke.	Capacity per Revolution.	Iron Cylinders. Price.	Br'ss-Lined Cylinders. Price.	Brass Cylinders. Price.
4	3 -inch.	1½-inch.	1½-inch.	6½-inch.	2⅓-gallon.	\$40.00	48.00	65.00
6	3½ " "	2 " "	1½ " "	6½ " "	1⅓ " "	45.00	57.00	78.00
8	4 " "	2½ " "	2 " "	8 " "	1⅓ " "	55.00	70.00	95.00
10	4½ " "	2½ " "	2 " "	8 " "	1⅓ " "	67.00	86.00	115.00
12	5 " "	2½ " "	2 " "	8 " "	1⅓ " "	82.00	100.00	140.00
16	6 " "	4 " "	2½ " "	8 " "	1⅓ " "	110.00	140.00	170.00

We can furnish this Pump mounted on platform with wheels at \$10.00 extra. No. 16 is fitted with gun metal valves and valve seats.

Order by this Catalogue Figure Number, stating size wanted.

# HAND AND POWER ROTARY FORCE PUMPS.

Probably in no class of manufacture is the axiom, "The best is the cheapest," better exemplified than in that of Hand and Power Rotary Force Pumps.

Having been extensively engaged for the past thirty-five years in the manufacture and sale of these Pumps, we have profited by our experience, and feel justified by the unsolicited testimony of our patrons and our constantly increasing sales, in saying we are to-day making the largest and best line of these goods in the market. A Rotary Pump must be made with the utmost care and accuracy, or it is worthless—and it is these points of excellence, accomplished by our skilled labor and improved machinery, that have earned the enviable reputation of the "Goulds Rotary."

These Pumps will lift water as far as any Piston Pump and give a constant uniform discharge.

When wanted for pumping hot liquids, it is necessary that we should be advised of it, as we put in a metallic valve in that case. Bronze Pumps should always be used for distilleries, malt houses, etc.

The whole inside working and principle of our Pumps are obvious from the sectional illustrations given below, in which Fig. 1731 represents the cams used in our smaller Hand Pumps, and Fig. 1732 those in our large Power Pumps.

## INTERNAL SECTION CUTS OF GOULDS ROTARY PUMPS.

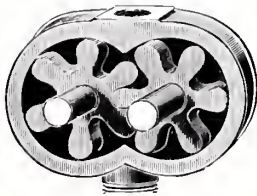


Fig. 1731.

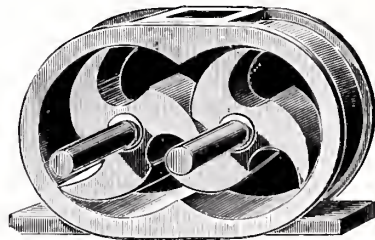


Fig. 1732.

The peculiar formation of these revolving cams or pistons was acquired after long experimenting and successful practice, and has demonstrated them to be of such a shape as to produce the very minimum of friction and wear with the greatest results.

The cases which receive these cams are engine lathe turned and bored and so perfectly true and smooth that the cams when in operation create almost a perfect vacuum and will "pick up" water quicker, for a long distance, and hold it better than any other Pump. The cams are not rough castings, "sand ground," as those in some inferior Pumps, but are carefully and accurately planed to mesh into each other and fit their case perfectly.

It is also a point worth noting that if a little good oil be put into the case of our Pumps before and after using at first, or simply pump air with this oil a few times, the cams become as hard upon the surface as fine tempered steel, and are almost unaffected by constant use afterwards.

Drip-plugs are provided for draining Pumps in cold weather. To do this turn the cams backward a single revolution to release all water.



HAND ROTARY BARREL PUMP.

IMPROVED BARREL ATTACHMENT OR HOLDER.

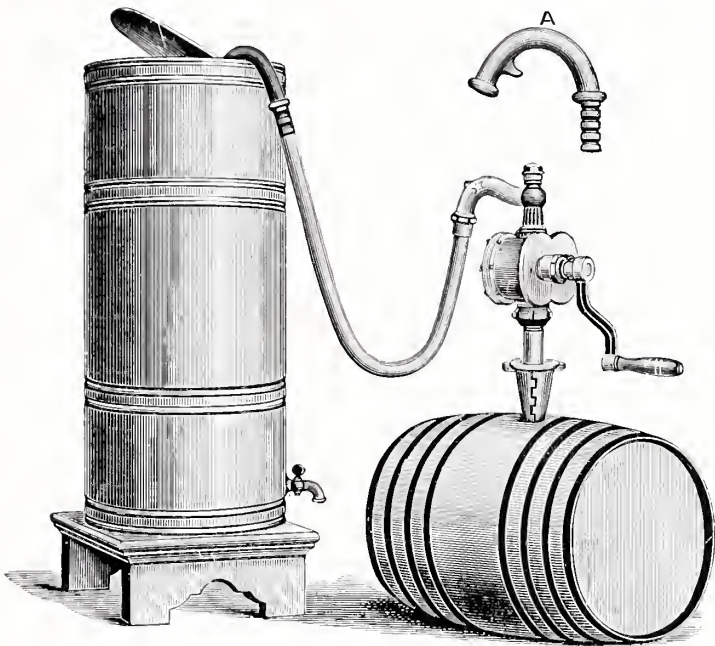


Fig. 1733.

Fig. 1733 shows one of our Hand Rotary Pumps, arranged with an improvement for holding the suction pipe of the Pump rigid in the bung of a barrel. The holder is a tapering sleeve in two halves, and can be used in barrels having any size of bung, from 1½ to 4 inches in diameter. A suction pipe of three feet in length goes with each Pump, as well as a hose coupling. With this apparatus fluids of any character or consistency can be pumped from a barrel, tierce or hogshead, and forced into a reservoir or receptacle at any distance removed, to the point desired.

The prices given below include suction pipe, hose coupling, hook and holder.

NUMBER . . .	1	2	3
Suction . . In.	1	1	1½
Discharge . .	1	1	1½
Gal. per 100			
Rev. . . . .	13	14	17
Iron . . . . .	\$17.00	20.00	24.00
Bronze . . . . .	39.00	44.00	49.00

HAND ROTARY FORCE PUMP, WITH LIGHT BALANCE WHEEL.

Fig. 1734 represents our Hand Rotary Force Pump, described on previous page, arranged on base, with light balance wheel. They are adapted for every place or purpose where a Lift and Force Pump can be used, and will pump from a well or cistern, or can be moved to any place where water is not more than fifteen to twenty feet distance and operated instantly. They will pump equally as well hot water by the addition of a metallic lower valve. For wine or liquor a Bronze Pump should always be used, as it is unaffected by the action of acids. These Rotary Pumps are known in every country of the world as the very best made. They have no competitors, are alone reliable, and always give satisfaction.

NUMBER . . . . .	1	2	3
Suction . . . . . Inches.	1½	1½	1½
Discharge . . . . . "	1	1	1½
Diameter Wheel . . . . .	14½	14½	14½
Revolutions, minute . . . . .	100	100	100
Gallons . . . . .	13	14	17
Iron . . . . .	\$19.00	22.00	26.00
Bronze . . . . .	41.00	46.00	51.00

Where water is raised over ten or twelve feet we would advise the use of a check or foot valve at the end of suction pipe, although this valve should be removed in cold weather or the pipe secured against freezing.

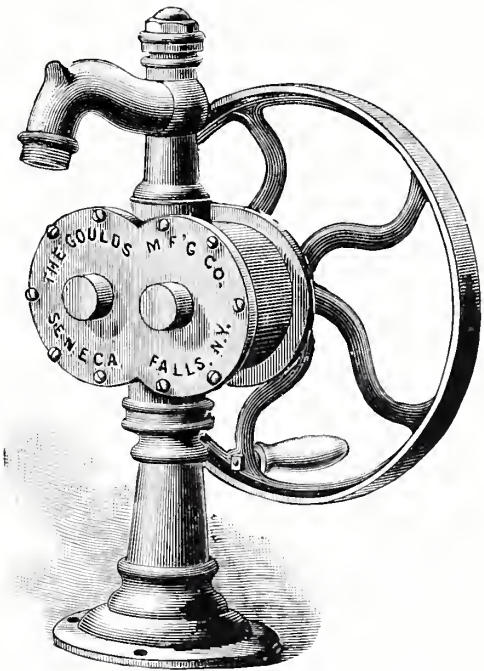


Fig. 1734.

Order by this Catalogue Figure Number, stating size wanted.



POWER ROTARY FORCE PUMP, ON FRAME.

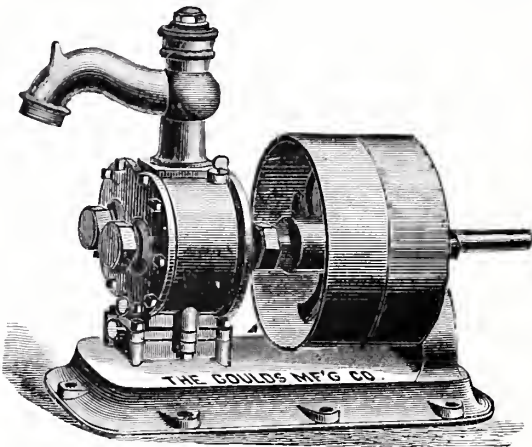


Fig. 1735.

This cut accurately represents our Rotary Force Pump on heavy cast iron frame, with tight and loose pulleys for power. Its internal construction is exactly similar to that of Fig. 1731, previously described, and arranged this way it is capable of constant and productive work. Beyond the pulleys is a strong bearing with Babbitt-lined boxes that the driving shaft runs in. This shaft is made of the best steel, and the whole pump finished with that care and labor which only can make good pumps of this kind. The shaft is also made long enough to take a balance wheel on end of it, beyond the bearing, but this wheel is only furnished when ordered. For all places where a running supply or large quantity of water is wanted for watering yards, lawns, or supplying water works, we know of no better pump for the money. It is also well adapted as a small fire pump, and will throw water from 125 to 150 feet horizontally.

No.	Suction.	Discharge.	Pulleys, Each.	Revolutions per Minute.	Gallons per Minute.	Iron. Price.	Bronze. Price.
1	1 1/4-inch.	1-inch.	2 1/2 X 8 inches.	100	13	\$27.00	49.00
2	1 1/4 "	1 "	2 1/2 X 8 "	100	14	32.00	56.00
3	1 1/2 "	1 1/4 "	2 1/2 X 8 "	100	17	38.00	63.00
4	1 1/2 "	1 1/2 "	3 1/2 X 12 "	100	27	48.00	78.00
5	2 "	2 "	3 1/2 X 12 "	100	36	54.00	90.00
6	2 1/2 "	2 1/2 "	4 X 24 "	100	45	80.00	135.00

POWER ROTARY FORCE PUMP.  
WITH OUTSIDE BEARING.

Fig. 1736 represents our new Rotary Force Pump with outside bearing and pulley fly wheel for power use. This pump may be used for any of the many services of rotaries—for pumping hot and cold water, wines, liquors, and filling still boilers or those working under moderate pressure, and it is especially arranged for power use at a moderate expense. The shaft is made extra long and rests upon a strong standard with Babbitt-lined box; while the fly wheel may be made any size to meet the requirements of the purchaser. These pumps are admirably adapted for use with high speed gas, kerosene, or other engines, as the height of outside bearing admits of the use of a very large pulley to compensate for speed of engine. In the tables given below we have given the size of pulleys most in demand, but could substitute others if needed, at proportionate List prices. Always fitted for wrought iron suction pipe.

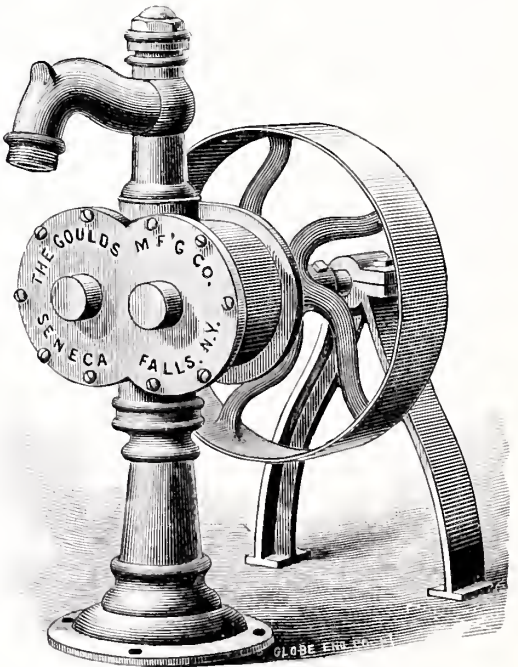


Fig. 1736.

No.	Suc.	Dis.	Pulley, Inch.	Gal. per Min. 100 Rev.	Iron.	Bronze.
Fig. 1736	1	1 1/4-in.	1-in.	18 x 4	13	\$25.00 47.00
" 1736	2	1 1/4 "	1 "	18 x 4	14	28.00 52.00
" 1736	3	1 1/2 "	1 1/4 "	18 x 4	17	32.00 57.00
" 1736	4	1 1/2 "	1 1/2 "	36 x 4	27	45.00 75.00
" 1736	5	2 "	2 "	36 x 4	36	50.00 85.00
" 1736	6	2 "	2 "	36 x 4	45	60.00 110.00

Where water is raised over 10 or 12 feet we would always advise the use of a check or foot valve at the end of suction pipe, although this valve should be removed in cold weather or the pipe secured against freezing.

Order by this Catalogue Figure Number, stating size wanted.

# POWER ROTARY FORCE PUMP, ON FRAME.

WITH TIGHT AND LOOSE PULLEYS.

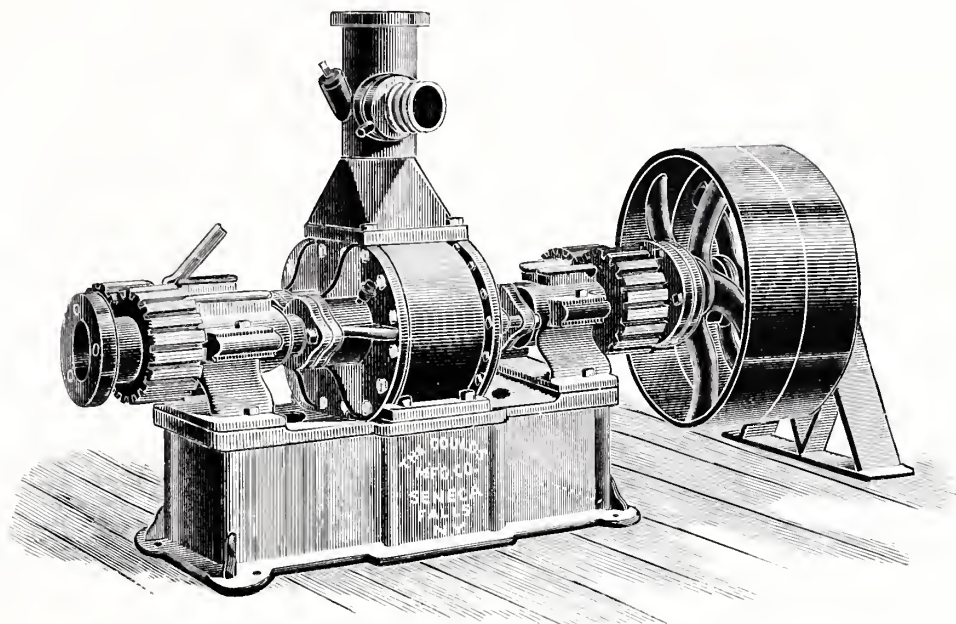


Fig. 1737.

Fig. 1737 represents one of our large Power Rotary Force Pumps, mounted on heavy east iron frame, with two sets of heavy cut gears and tight and loose pulleys for power. The cams are fitted to each other with the greatest care, and the cases that receive them made as true and perfect as the best tools and machinery can render them.

The pulleys are turned and polished and have a heavy outside bearing beyond the end, which relieves the shaft of all undue strain.

The suction and discharge openings can be fitted for east iron or wrought iron pipe or hose, as ordered.

In the table given below will be found the capacity of these Pumps and about the speed they should be run, although they could be run much faster if desired, with greater results.

We can furnish Pipe, Hose, Couplings, Play Pipes, etc., at market rates.

No.	Suction.	Discharge.	Pulleys, Each.	Gallons per Revolution.	Revolutions per Minute.	*Lift and Force.	Approx. Weight.	Iron. Price.	Bronze. Price.
1	2 -inch.	1½-inch.	12 x 3½-in.	¼	225 to 250	150 ft.	200 lbs.	\$100.00	160.00
2	2½ "	2 "	15½ x 4 "	½	175 " 200	150 "	310 "	115.00	180.00
3	3 "	2½ "	17½ x 5 "	1	150 " 175	150 "	500 "	160.00	260.00
4	5 "	4 "	24 x 6 "	1½	125 " 150	150 "	1060 "	225.00	325.00
5	6 "	5 "	30 x 8 "	2½	100 " 125	150 "	1300 "	275.00	400.00
6	8 "	6 "	. . .	4	75 " 100	150 "	2000 "	425.00	600.00

\* Total lift and force from supply to point of delivery.

Order by this Catalogue Figure Number, stating size wanted.

POWER ROTARY FIRE PUMP.

WITH AIR CHAMBER.

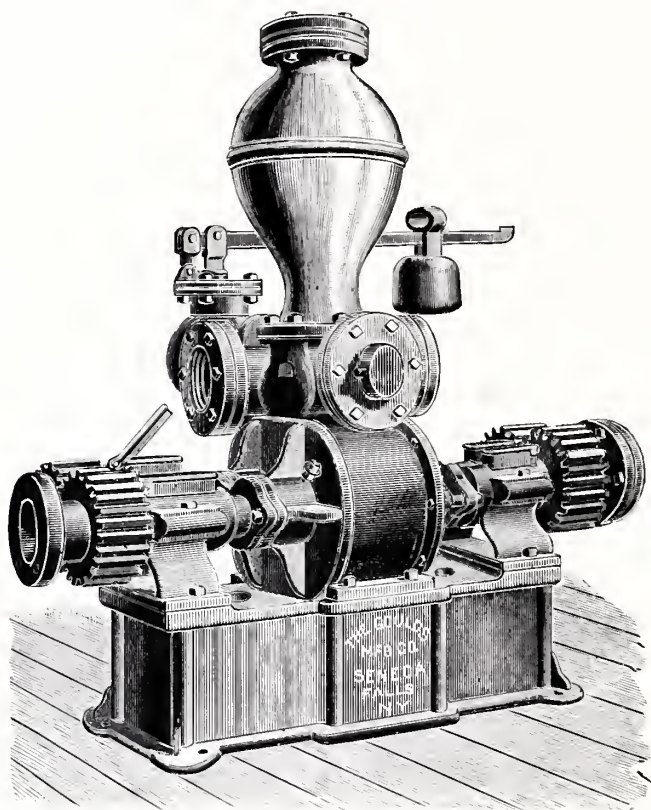


Fig. 1738.

Fig. 1738 is our large Rotary Pump, built especially for high speed duty in protecting Mills, Factories, Warehouses, etc., against fire.

We recommend driving Fire Pumps by direct shaft, gears or friction pulleys as being more reliable and less liable to accident than belts. The first requirements of a Fire Pump are reliability and efficiency, and we unhesitatingly commend our Pump to our friends.

The discharge openings (five in number) and suction may fitted for wrought iron or cast iron pipe or hose, as ordered. The speed given below may be increased in cases of emergency without injury, although intended as given for fire duty. Pump will work against any practical fire pressure.

We solicit correspondence concerning these admirable Pumps, and will cheerfully furnish estimates on any contract, and fully guarantee every Pump sent from our works.

Fig.	No.	Suction.	Discharge.	Gals. per Rev.	Rev. per Minute.	Approx. Weight.	Price.
1738	3	3-inch.	2½-inch.	1	350 to 400	550 lbs.	\$172.00
1738	4	5 "	4 "	1½	300 " 350	1100 "	240.00
1738	5	6 "	5 "	2½	250 " 300	1400 "	300.00
1738	6	8 "	6 "	4	200 " 250	2100 "	450.00

Order by this Catalogue Figure Number, stating size wanted.



# COMBINED HAND AND POWER PUMPING APPARATUS.

FOR HAND AND POWER USE.  
WITH GEAR AND PINION. WITH TIGHT AND LOOSE PULLEYS.

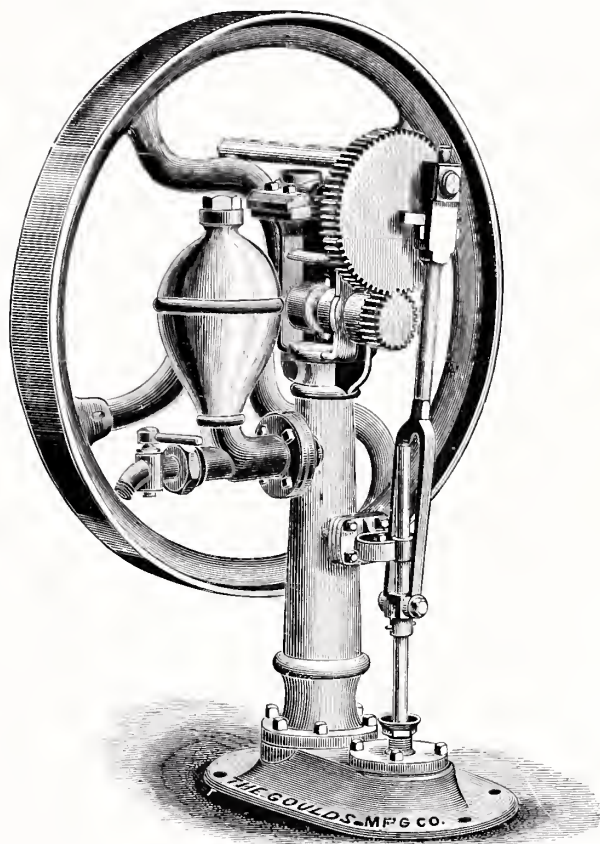


Fig. 1739.

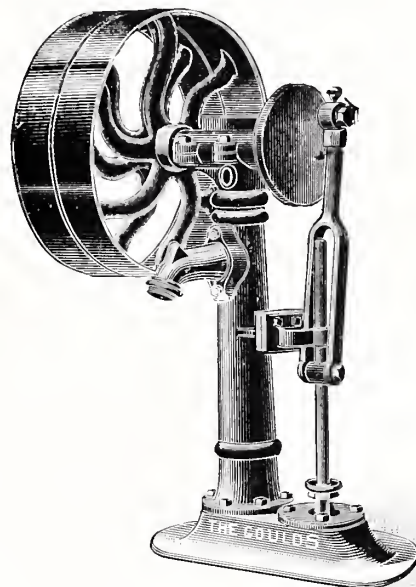


Fig. 1740.

Fig. 1739. As the cut shows, this is a very strong and well made Pumping Head, and is particularly well adapted for Artesian and Deep Wells. It is capable of handling a large cylinder, as it is geared back three to one.

The main gear and pinion are best steel with machine cut teeth, well fitted, bright finished and work with minimum friction. For driving single pumps it is unsurpassed. Gas, Steam, Petroleum or Electric motors may be used with it. It is provided with air chamber and cock spout. Water can be forced upward through top of air chamber or drawn through the cock.

The whole has high-class finish and superior workmanship. Deduct \$2.00 from prices given below when cock is not furnished.

	Lift and Force.	Height.	Pipe.	Stroke.	Fly Wheel.	Price.
Fig. 1739 . . . . .	24-in. cyl. 125 ft.	48 in.	1½-in.	7-in.	36 x 4½ in.	\$70.00
" 1739 . . . . .	3 " " 100 "	48 "	1½ "	7 "	36 x 4½ "	70.00
" 1739 . . . . .	3½ " " 60 "	48 "	1½ "	7 "	36 x 4½ "	70.00
Without Air Chamber and Cock Spout. . . . .						\$65.00
Without Cock Spout . . . . .						68.00

Fig. 1740. Under Fig. 1739, a description of this will be found in a general way. Its distinguishing feature is the tight and loose pulleys for belt transmission. In place of spout, an air chamber can be used like Fig. 1739, or a gas pipe flange for lateral or vertical distribution of water.

	Size No.	Pipe.	Stroke.	Pulleys, Each.	Price.
Fig. 1740 . . . . .	1	1½-inch.	5, 6 or 7-inch.	20 x 3 inches.	\$44.00

Order by this Catalogue Figure Number, stating size wanted.



# NEW STYLE STEAM BOILER FEED PUMP.

FOR HAND AND POWER USE.

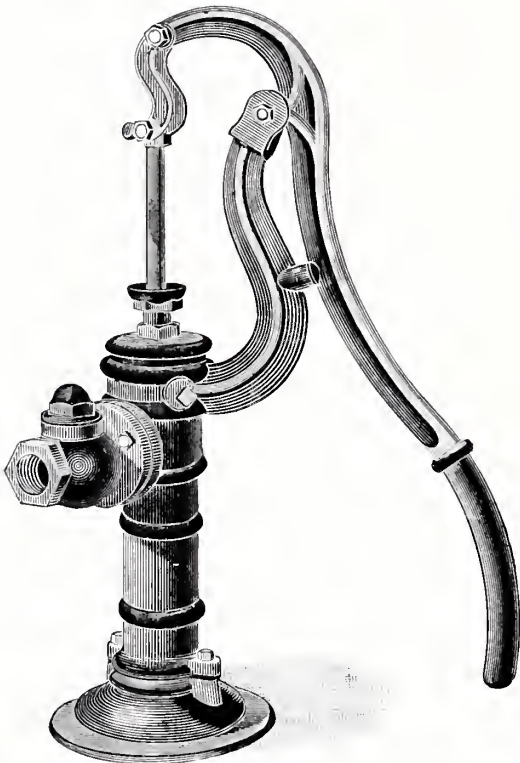


Fig. 1741.

Fig. 1742 shows an entirely new and improved pattern of Steam Boiler Feed Pump with crank shaft, face-plate, and tight and loose pulleys for hand and power.

On the end of driving shaft, opposite the face-plate, is a heavy iron crank with wrought iron handle for working the pump when necessary before steam is up.

These pumps will feed boilers under any steam pressure, and are built in the best possible manner.

Stroke, 3½ inches.

Pulleys are 16-inch diameter, 4-inch face each.

No.	Diameter Cylinder.	Suction and Discharge.	Gals. per Minute, 60 Strokes	Size of Boiler.	Price.
0	2 -inch.	1 -inch.	2.45	30 H. P.	\$34.00
2	2½ “	1½ “	3.82	40 “	40.00
4	3 “	1¾ “	5.51	50 “	50.00

Fig. 1741 shows a Boiler Feed Pump for filling cold boilers, or feeding those under a moderate pressure of steam. Where boilers are employed for making steam merely, and do not make enough of it to generate any pressure to speak of, these pumps are very extensively used.

A brass globe check valve in the eduction outlet prevents the water from going back again into the pump. They are all made with metallic fittings throughout for pumping hot as well as cold water. We would advise when pumping hot water, that the pump be placed as near the water as possible.

Stroke, 6 inches.

No.	Diameter Cylinder.	Suction and Discharge.	Gal. per Stroke.	Size of Boiler.	Price.
0	2 -inch.	1 -inch.	$\frac{1}{8}$	15 H. P.	\$12.00
2	2½ “	1½ “	$\frac{1}{4}$	25 “	14.00
4	3 “	1¾ “	$\frac{1}{2}$	30 “	16.00

TIGHT AND LOOSE PULLEYS.

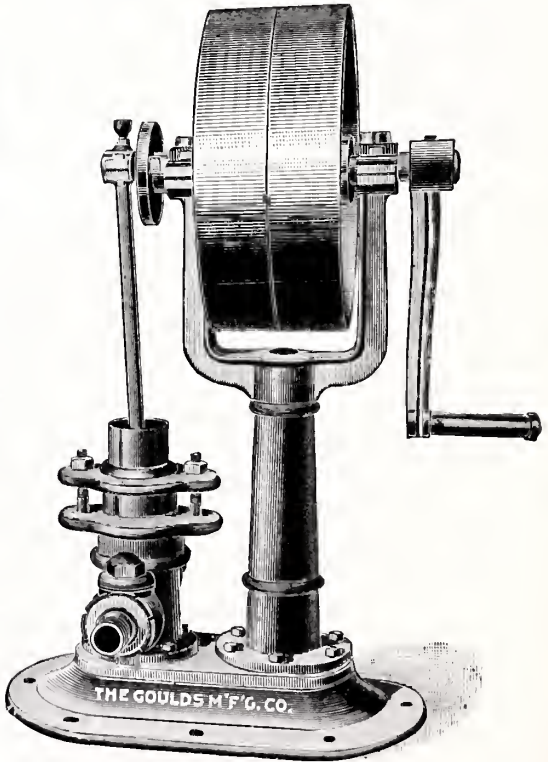


Fig. 1742.

Order by this Catalogue Figure Number, stating size wanted.

BRASS AIR PUMP.

FOR HAND AND POWER USE.

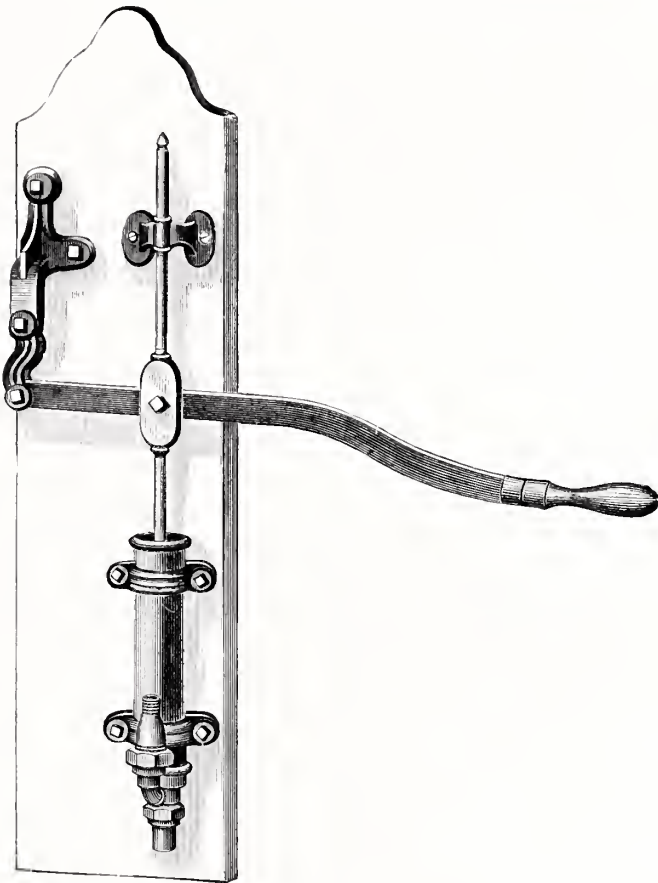


Fig. 1743.

Fig. 1744 represents a new style of Boiler Feed Pumps, adapted for power. The remarks under Fig. 1741 apply equally well to this pump, which is simple, strong and very serviceable. Prices named below will make this a very popular pump.

No.	Diameter Cylinder.	Stroke.	Suction and Dis.	Strokes per Min.	Gals. per Minute.	Price.
2	1½-inch.	6-inch.	¾-inch.	40	1.27	\$10.00
3	1½ "	6 "	1 "	40	1.84	15.00
4	1½ "	3 "	¾ "	60	1.37	14.00
5	2 "	3 "	1 "	60	2.45	18.00
6	2½ "	3 "	1 "	60	3.82	22.00
7	3 "	3 "	1½ "	60	5.50	27.00
8	2 "	6 "	1½ "	40	3.26	22.00
9	2½ "	6 "	1½ "	40	5.10	30.00
10	3 "	6 "	1½ "	40	7.35	40.00

Fig. 1743 represents a Brass Air Pump, mounted on plank, with wrought iron handle, of proper construction, for forcing air or gas into barrels, casks or other vessels. In this manner the most destructive acids, such as nitric, sulphuric, etc., may be raised by atmospheric pressure without coming in contact with Pump or in fact anything except conveying pipes.

The uses of an Air Pump are so various, that we prefer to know for what it is to be employed, quantity of air desired, etc.

We can furnish also an Air Pump intended for heavier pressures, say 150 to 200 pounds to the square inch, as below.

Fig. 1743. 2-inch Bore, 6-inch Stroke . . . . . \$15.00

Fig. 1743. 1½-inch Bore, 10-inch Stroke . . . . . \$30.00

Estimates for Power Air Pump furnished on application.

STEAM BOILER FEED PUMP.

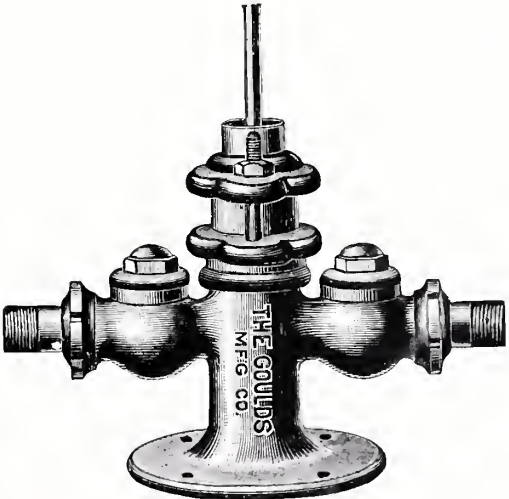


Fig. 1744.

Order by this Catalogue Figure Number, stating size wanted.

# “CHALLENGE” DOUBLE-ACTING HORIZONTAL POWER FORCE PUMP.

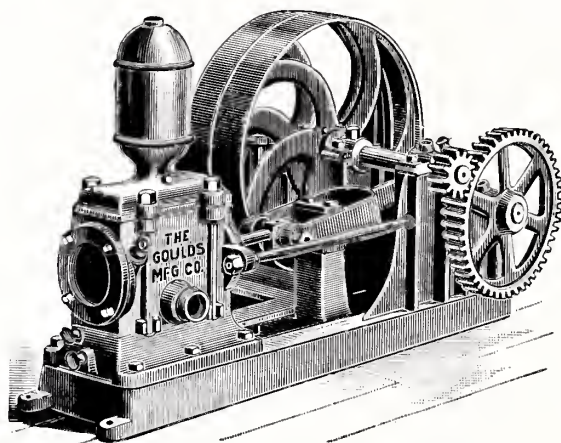


Fig. 1745.

Fig. 1745 represents our Double-Acting “Challenge” Force Pump, mounted on strong iron frame, with machine cut gear, tight and loose pulleys, etc., and is adapted for feeding boilers or working in any place or capacity under heavy pressure. The cylinder is lined with brass, while the piston rod, valves, valve seats, and all working parts exposed to action of water are of brass or gun metal, and when ordered can be fitted for hot water. The Pump is geared 4 to 1, and for continuous service the pulley shaft may be run between 160 to 180 revolutions per minute, and against 100 pounds pressure per square inch. The size of pulleys given below could be varied to meet circumstances. We should be advised when this pump is to be used for feeding boilers, for then the plunger should be made entirely of metal, for which an extra charge would be made. Always fitted for wrought iron pipe unless otherwise ordered.

Diameter Cylinder.	Stroke.	Suction.	Discharge.	Pulleys, Each.	Gal. per Revolution.	R. P. M. Crank Shaft.	Approximate Weight.	Price.
2½-inch.	4½-inch.	1¼-inch.	1 -inch.	20 x 3 in.	1 5 3	35	330 lbs.	\$85.00
3 “	4½ “	1½ “	1 “	20 x 3 “	1 5 6	35	335 “	90.00
4 “	4½ “	1½ “	1½ “	20 x 3 “	1 5 8	35	350 “	95.00
5 “	4½ “	2 “	1½ “	20 x 4 “	1 5 8	35	672 “	125.00
6 “	4½ “	2½ “	2 “	20 x 4 “	1 5 8	35	717 “	150.00

Order by this Catalogue Figure Number, stating size wanted.



“ALERT” DOUBLE-ACTING HORIZONTAL  
POWER FORCE PUMP.

ON FRAME WITH PULLEY.

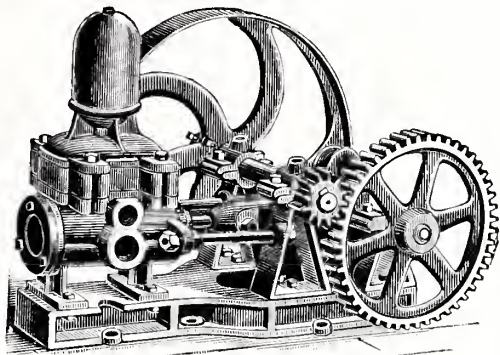


Fig. 1746.

The pump illustrated above shows our Double-Acting “Alert” Force Pump, mounted on iron frame, with machine cut gear, pulleys, etc., for power use. A simple and compact pump of this class has been of late very greatly demanded, capable of working against a moderate pressure, and at the same time being reasonable in price, and to meet this demand we offer the combination above represented. The chief features of this pump we enumerate below :

The valves, which are of leather, are all grouped together under the air chamber, and can readily be exposed to view without disturbing either the suction or discharge pipes, by unscrewing the heavy brass nut on top of the air chamber, when the whole pump can be taken apart. The bearings of the pulley and crank shaft are placed symmetrically in respect to the centre line of pump. The connecting rod is made of bronze and can be adjusted to allow for wearing of parts. To the piston rod a strong iron yoke is attached, which is of such a form as to act as a guide rod to the pump, and allow the crank and connecting rod to move up and down inside without touching it. The pump is geared 4 to 1, stroke 5 inches, and for continual service the pulley shaft should run between 160 to 180 revolutions per minute, and against about 50 pounds pressure per square inch. The size pulley given below could be varied to meet circumstances. Always fitted for wrought iron pipe unless ordered to the contrary. For use with gas, kerosene or with other high speed engines, this pump is unexcelled.

In making inquiry or orders, always state duty intended or required of pump.

	Diameter Cyl.	Double Suc.	Double Dis.	Stroke.	Capacity per Rev.	Floor Space.	Size Pulley.	Price.
Fig. 1746 . .	3 -inch.	1½-inch.	1 -inch.	5-inch.	$\frac{3}{10}$ gallon.	14 x 26 in.	20 x 3 in.	\$55.00
“ 1746 . .	3½ “	1½ “	1½ “	5 “	“	14 x 26 “	20 x 3 “	75.00
“ 1746 . .	4 “	1½ “	1½ “	5 “	“	14 x 26 “	20 x 3 “	85.00

With tight and loose pulleys and outbored bearing, add to List, No. 4, \$8.50; 3½ and 4-inch Cylinder,\$10.00.

Order by this Catalogue Figure Number, stating size wanted.



# GOULDS SPECIAL TRIPLEX PUMP.

FOR ELEVATIONS TO 300 FEET OR EQUIVALENT PRESSURE.

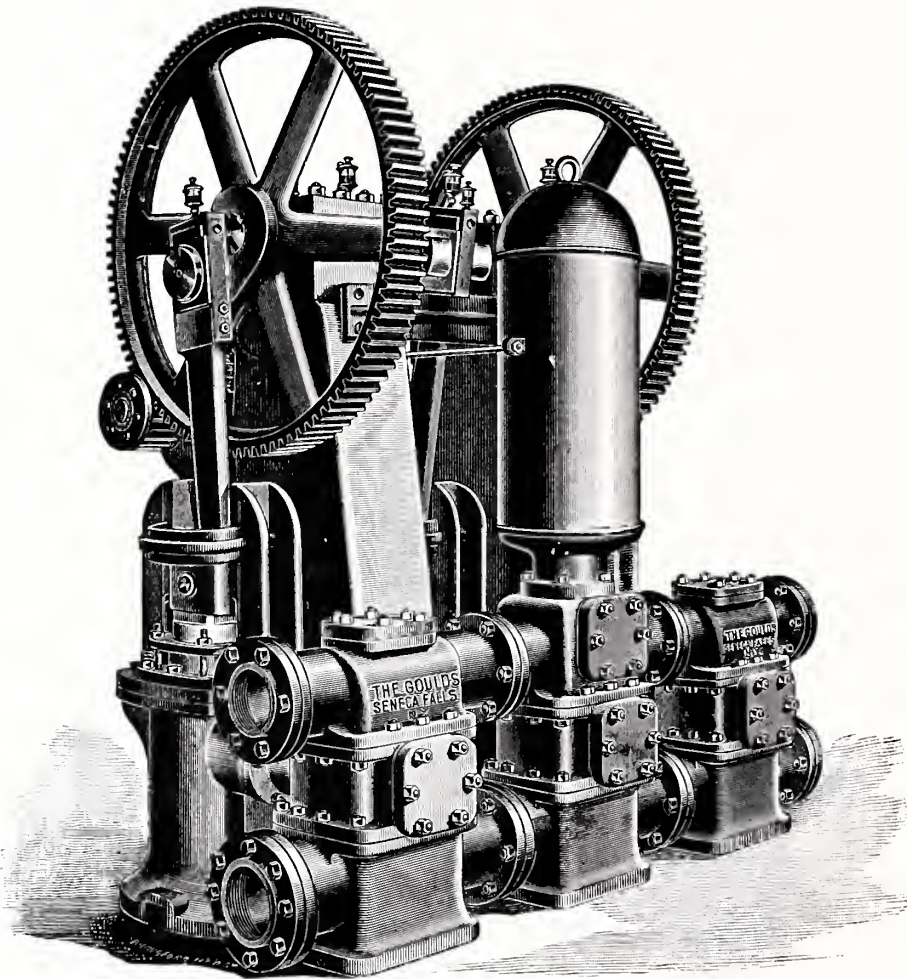


Fig. 1747.

Fig. 1747 Special Triplex Power Pump for water works stations, hydraulic elevators, etc., in common with our other types Triplex Pumps, has three single-acting cylinders with outside packed plungers, but possesses following exclusive features:

†The plungers are outside guided above, relieving them of excessive wear or strain, and have brass bushed connecting rods of forged steel, of the locomotive type, with an adjustment at either end for wear.

The power is transmitted direct to each of these plungers in this manner.

A countershaft behind pump, with pulley for belt or other connection, transmits power to spur gears at either end of pump, driving (by crank pins in manner of face-plate) the two outside plungers, and at the same time through the single throw supporting crank shaft the centre or middle plunger.

The bronze suction and discharge valves are all grouped in valve chamber shown in front of pump base, and accessible through hand holes or ports.

Details of construction or other information will be furnished upon application.

Diameter Cylinders.	Stroke.	Suction.	Discharge.	Geared.	Gallons per Revolution.	R. P. M. Crank Shaft.		Approximate Weight.	* Price.
						To 200 Ft.	To 300 Ft.		
10-inch.	12-inch.	8-inch.	6-inch.	5 <sup>3</sup> / <sub>8</sub> to f	12 <sup>1</sup> / <sub>2</sub>	35	30	16000 lbs.	

\* Price upon application.

Order by this Catalogue Figure Number, stating size wanted.

# GOULDS TRIPLEX ELECTRIC POWER PUMP.

GEARED WITH TIGHT AND LOOSE PULLEYS. FOR ELEVATIONS TO 300 FEET OR EQUIVALENT PRESSURE.

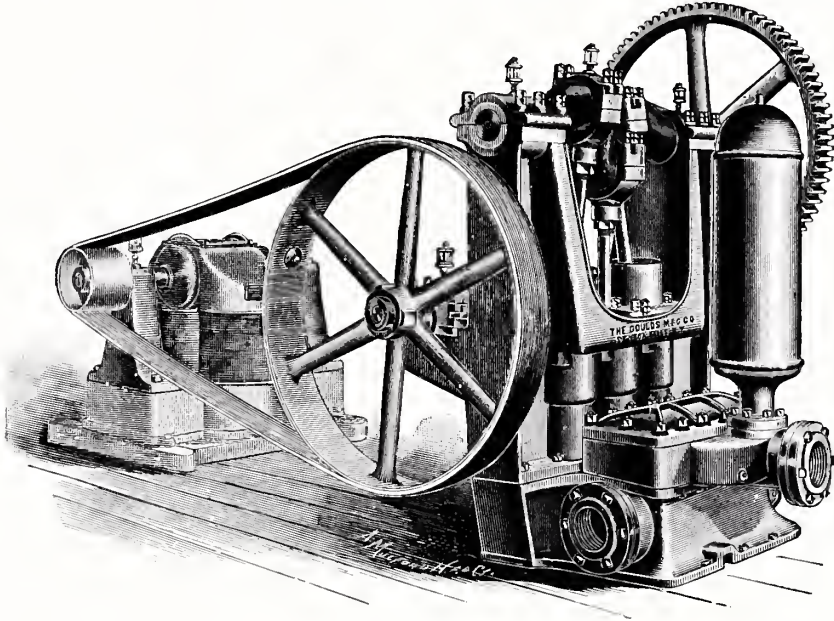


Fig. 1748.

Fig. 1748 is our Triplex Electric Power Pump with rawhide pinion and driving pulley for belt. This combination of Pump and Motor can be brought within surprisingly small limit and is practically noiseless in operation.

Always specify speed requirements, giving diameter, face and speed of motor pulley.

Diameter Cylinders.	Stroke.	Suction.	Discharge.	Geared.	Gallons per Revolution.	R. P. M. CRANK SHAFT.		Approximate Weight.
						To 200 Ft.	To 300 Ft.	
1½-inch.	2 -inch.	¾-inch.	¾-inch.	5 to 1	$\frac{1}{35}$	50	40	100
1¾ " "	2½ " "	1¼ " "	1¼ " "	5 " 1	$\frac{1}{16}$	50	40	180
2 " "	3 " "	1¼ " "	1¼ " "	5 " 1	$\frac{1}{8}$	50	40	235
2½ " "	4 " "	1½ " "	1½ " "	5 " 1	$\frac{1}{4}$	50	40	350
3 " "	4 " "	1½ " "	1½ " "	5 " 1	$\frac{1}{3}$	45	35	525
4 " "	4 " "	2 " "	2 " "	5 " 1	$\frac{2}{3}$	45	35	750
4 " "	6 " "	2 " "	2 " "	5 " 1	1	40	30	800
5 " "	6 " "	3 " "	3 " "	5 " 1	1½	40	30	1800
5 " "	8 " "	3 " "	3 " "	5 " 1	2	40	30	1850
6½ " "	8 " "	4 " "	4 " "	5 " 1	3½	40	30	3600
8 " "	8 " "	5 " "	4 " "	5 " 1	5¼	35	25	5800
8 " "	10 " "	5 " "	4 " "	5 " 1	6½	35	25	6750
9 " "	10 " "	6 " "	5 " "	6 " 1	8¼	35	25	11000

Prices on application.

Order by this Catalogue Figure Number, stating size wanted.

# GOULDS TRIPLEX POWER PUMP.

GEARED WITH TIGHT AND LOOSE PULLEYS. FOR ELEVATIONS TO 60 FEET [OR EQUIVALENT PRESSURE.

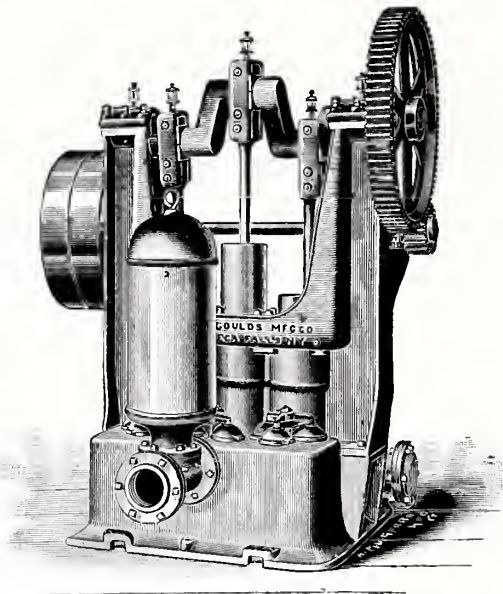


Fig. 1749.

Fig. 1749 is our Light Service Triplex Power Pump, with rubber ball valves, tight and loose pulleys, etc., for filling tanks, creating circulating currents, etc. For a limited range of service it will answer as well as a heavier pattern, more expensive Pump, and is much more efficient and economical in operation than any form of Centrifugal or Fan Pump.

Diameter Cylinders.	Stroke.	Suction.	Discharge.	Geared.	Pulleys.	Gals. per Revolution.	R. P. M. Crank Shaft.	Approx. Weight.	*Price.
7-inch.	8-inch.	4-inch.	4-inch.	4 to 1	30 x 6 inch.	4	40	2250 lbs.	
8 “	10 “	6 “	5 “	5 “ 1	36 x 6 “	6½	40	5300 “	
8 “	12 “	6 “	5 “	5 “ 1	36 x 6 “	7½	40	5400 “	

\* Prices upon application.

Order by this Catalogue Figure Number, stating size wanted.



# GOULDS DIRECT TRIPLEX SUCTION AND FORCE PUMP.

GEARED WITH TIGHT AND LOOSE PULLEYS.

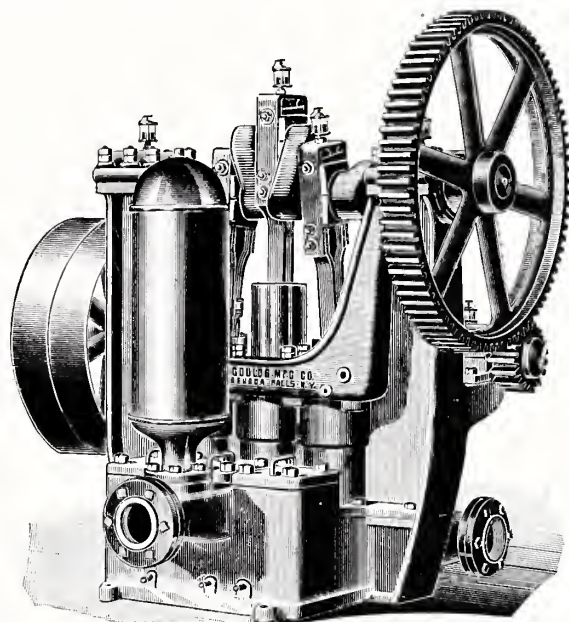


Fig. 1750.

In Fig. 1750 is embodied all the good features of this class of pumps. Thoroughly first-class in material and workmanship, adequately heavy and strong in all parts, compact and built for service, economical in operation, all parts easy of access, simple in design and construction, while power and pipe connections can be easily made or changed.

It is capable of high or low pressure service, filling tanks, feeding boilers, supplying hydraulic elevators and pulp grinders, irrigating lands, creating air pressure or vacuum, etc., and can be adapted for any speed requirements from the high speed electric motors, gas or oil engines to the lower speed of countershafts driven by any power.

The public, a close discriminator and best of judges, has generally selected this type of pumps in preference to any other. The many advantages of gears (ours are machine cut) in transmitting power have long been recognized and accepted by every authority on hydraulics, and do not need our encomiums. This pump is especially well adapted for feeding boilers under any pressure, and our table below is compiled with particular reference to this duty, though the pump is capable of manifold other adaptations admitting greater speed (fifty to seventy-five), and giving proportionately greater results.

Diameter Cylinders.	Stroke.	Suction.	Dis- charge.	Geared.	Pulleys.	Gallons per Revolution.	R. P. M. Crank Shaft.		Approximate Weight.
							To 200 Ft.	To 300 Ft.	
1½-inch.	2 -inch.	¾-inch.	¾-inch.	5 to 1	12 x 1½-in.	1/35	50	40	100 lbs.
1½ " "	2½ " "	1¼ " "	1¼ " "	5 " 1	12 2½ " "	1/11	50	40	190 " "
2 " "	3 " "	1½ " "	1½ " "	5 " 1	12 2½ " "	1/11	50	40	235 " "
2½ " "	4 " "	1½ " "	1½ " "	5 " 1	15 3 " "	1/4	50	40	350 " "
3 " "	4 " "	1½ " "	1½ " "	5 " 1	15 3 " "	1/8	45	35	525 " "
4 " "	4 " "	1½ " "	1½ " "	5 " 1	20 3 " "	1/8	45	35	750 " "
4 " "	6 " "	2 " "	2 " "	5 " 1	20 3 " "	1	40	30	800 " "
5 " "	6 " "	2 " "	2 " "	5 " 1	26 4 " "	1½	40	30	1800 " "
5 " "	8 " "	3 " "	3 " "	5 " 1	30 5 " "	2	40	30	1900 " "
6½ " "	8 " "	3 " "	3 " "	5 " 1	30 6 " "	3½	40	30	3600 " "
8 " "	8 " "	5 " "	4 " "	5 " 1	36 6 " "	5½	35	25	5800 " "
8 " "	10 " "	5 " "	4 " "	5 " 1	42 6 " "	6½	35	25	6750 " "
9 " "	10 " "	6 " "	5 " "	6 " 1	42 8 " "	8½	35	25	11000 " "

Prices on application.

Order by this Catalogue Figure Number, stating size wanted.



# GOULDS TRIPLEX POWER SUCTION PUMP.

GEARED WITH TIGHT PULLEY. FOR TAKING WATER FROM SUCTION BOXES.

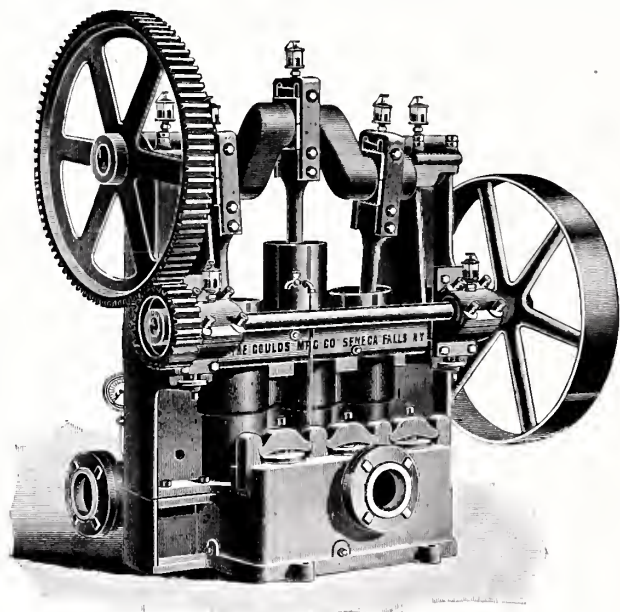


Fig. 1751.

Fig. 1751 is our Geared Triplex Power Suction Pump, with bronze plungers, and special base in which are placed the rubber ball suction and discharge valves on either side. The caps covering these valves are readily removed and valves and seats may be quickly examined or cleaned if necessary.

Pumps of this class are designed to allow water seal over the glands, thus avoiding the wear and pitting of plungers incident to hard-packed and tight-set glands. The discharge may also be delivered to any point above or beyond Pump.

Our 7 x 8-inch Pump may be used on paper machines, not wider than 90-inch, running 250 feet per minute on wood-news. Automatic Brass Suction Regulator and Vacuum Gauge furnished with each Pump.

	Diam. Cyl.	Stroke.	Suction.	Dis.	Geared.	Pulley.	Gal. per Rev.	R. P. M. Crank Shaft.	Approx. Weight, Lbs.	* Price.
Fig. 1751 . . .	7-in.	8-in.	4-in.	4-in.	4 to 1	30 x 6-in.	4	40	2250	
" 1751 . . .	8 "	10 "	6 "	5 "	5 " 1	36 x 6 "	6½	40	5300	
" 1751 . . .	8 "	12 "	6 "	5 "	5 " 1	36 x 6 "	7½	40	5400	

\* Prices upon application.

Order by this Catalogue Figure Number, stating size wanted.

# GOULDS TRIPLEX POWER STUFF PUMP.

GEARED WITH TIGHT PULLEY. FOR PAPER MACHINES.

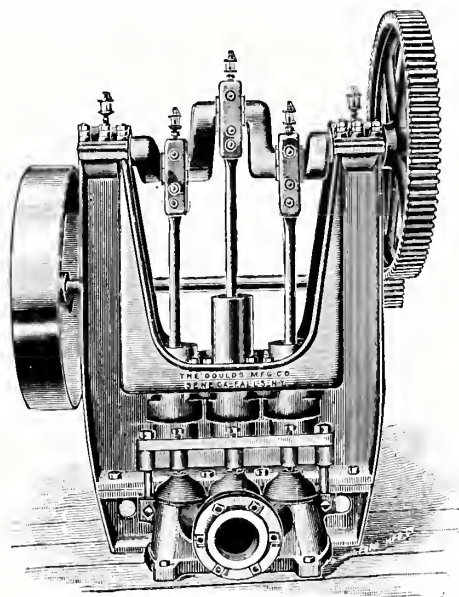


Fig. 1752.

Fig. 1752 represents our new Triplex Power Stuff Pump, with phosphor bronze plungers and lined cylinders.

Pump is especially designed with large openings, ball valves, etc., for pumping paper stock, pulp, molasses, tar, beer mash, etc.

The Triplex Pump is entirely self-contained, costs almost nothing to place or maintain, and occupies but small floor space.

Diameter Cylinders.	Stroke.	Suction.	Discharge.	Geared.	Pulleys.	Gals. per Revolution	R. P. M. Crank Shaft.	Paper per 24 Hours.	Approx. Weight.	*Price.
4-inch.	6-inch.	3-inch.	3-inch.	5 to 1	20 x 3 in.	1	35	4 tons.	800 lbs.	
5 "	8 "	4 "	4 "	4 " 1	20 x 4 "	2	35	4 to 8 "	1600 "	
7 "	8 "	5 "	5 "	4 " 1	30 x 5 "	4	35	8 " 15 "	2000 "	

\*Prices upon application.

Order by this Catalogue Figure Number, stating size wanted.

# DIRECTIONS FOR PLACING AND OPERATING POWER PUMPS.

Inquiries and orders should be accompanied by the following information:  
Purpose for which Pump will be used.  
Liquid to be pumped — as hot or cold, clear or gritty, fresh, alkaline or acidulous.  
Maximum quantity to be pumped per minute or hour.  
Height liquid will be lifted by suction, and diameter and length of suction pipe.  
Elevation liquid will be pumped, and diameter and length of discharge pipe.  
Working pressure, if any, other than that incident to elevation and friction of water in pipe.  
Pump should be located level, and in such position as to receive good, liberal belt service from driving pulley. The suction pipe should be run as direct as possible to source of water supply, extra care being taken to make all joints perfectly air-tight, and also leave pipe as free from sediment, grit, dirt, etc., as possible. Place foot valve on end of suction pipe, especially if water is 10 feet or more below, or if pipe is large diameter. When suction is taken through a long line of pipe, use extra large size and vacuum chamber.  
When working Pump under a very high head, it is expedient to place Pump below water supply, so that water will run into Pump. Same location applies also when Pump is handling hot water. Discharge pipe should be run as direct as possible to point of discharge, avoiding all extra T's, elbows, etc.  
If Pump is forcing into steam boiler, or against high head, or into pressure tank containing expansible fluid, check valve should always be placed on discharge pipe. In all cases drip valve should be placed in pipe.  
When starting Pump, note that all wearing surface has a liberal supply of good oil. When Pump is run at slow speed against heavy pressures, heavy oil is best. Graphite grease is an excellent material to dope gears with to insure easy and noiseless operation.  
There are means for taking up any small amount of wear which may occur upon either shaft or Babbit bearings. It is important always to take up this wear as soon as discovered.

## USEFUL INFORMATION — WATER.

Doubling the diameter of a pipe increases its capacity four times. Friction of liquids in pipes increases as the square of the velocity.  
To find the capacity of any single-acting cylinder, square the diameter (in inches of the cylinder), multiply this by .7854, and the result (which is the area of the circle of cylinder) by the length of stroke in inches. This gives the capacity in cubic inches per stroke. Multiply this by the number of strokes per minute and divide the product by 231 (the number of cubic inches in a gallon of water). The result will be capacity or gallons of water the cylinder will discharge per minute.  
A two-cylinder or double-acting cylinder has double the capacity of a single-acting cylinder.  
To find the horse-power necessary to elevate water to a given height, multiply the number of gallons per minute by 8.35, weight of one gallon, and this result by total number of feet water is raised (that is, from surface of the water to the highest point to which the water is raised), and you have the power in foot pounds. Divide by 33,000 and you have the horse-power. One horse-power is equal to about five men. To the theoretical power a liberal allowance for friction, etc., always should be added.

## WEIGHT AND CAPACITY OF DIFFERENT STANDARD GALLONS OF WATER.

	Cubic Inches in a Gallon.	Weight of a Gallon in Pounds.	Gallons in a Cubic Foot.
Imperial or English. . . . .	277.274	10.00	6.232102
United States. . . . .	231.	8.33111	7.470519

Weight of a cubic foot of water, English standard, 62.321 lbs. Avoirdupois.  
A miner's inch is a measure for flow of water, and is an opening 1 inch square in plank, 2 inches thick, under a head of 6 inches of water to upper edge of opening.

## USEFUL INFORMATION — STEAM.

A good automatic non-condensing engine requires from 3 to 4 lbs. of coal per horse-power per hour, according to the quality of the coal.  
An automatic condensing engine requires from 2½ to 3½ pounds of coal per horse-power per hour.  
A steam-jacketed compound condensing engine of the most improved construction may reduce the consumption of coal as low as 1½ to 2 pounds of coal per horse-power per hour.  
The average amount of feed-water required for a good, economical engine, is thirty pounds per indicated horse-power per hour; engines of high economy will use less than this amount and those more wasteful will use more. A high piston speed, together with a high rotative speed, is very desirable, as great power may thus be obtained from moderate-sized engines, and also the evil of internal condensation is corrected to a great extent, but these are somewhat limited by practical considerations.  
A good condenser increases the economical efficiency of an engine from twenty-five to forty per centum, and the amount of injection water required is about twenty-five times the quantity fed into the boilers.



# COMBINED HORSE POWER AND TRIPLEX PUMP.

FOR IRRIGATING LANDS, WATER SUPPLY, ETC.

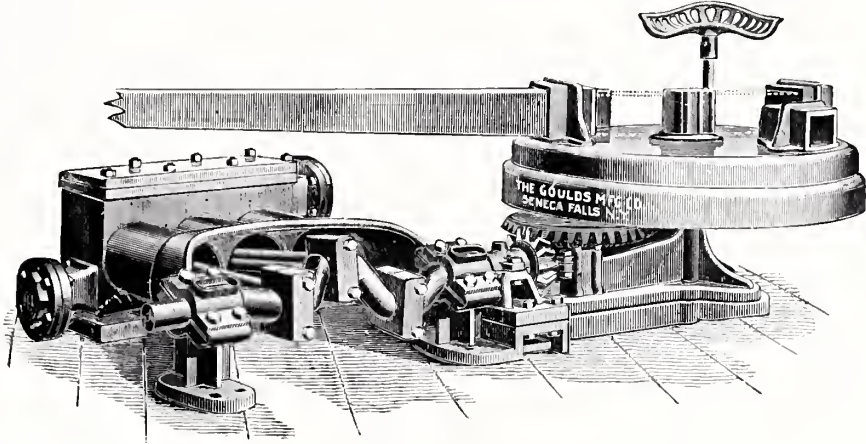


Fig. 1753.

We illustrate above a combination of Horse Power, and our Horizontal Triplex Suction and Force Pump—a complete and self-contained pumping apparatus for the ranchman or farmer. At 50 revolutions it will furnish 4,500 gallons per hour—sufficient for a large number of cattle or to irrigate an extensive surface of land. There is absolutely nothing that can give out, as all parts are massive and compact. Pump can be disconnected and power used for other purposes if desired. Pump capable of any duty for which one or two horses can exert necessary power. An Air Chamber in delivery pipe if forcing water to any considerable elevation would be advantageous.

	Diameter Cylinder.	Stroke.	Suction and Discharge.	Revolutions per Minute.	Gallons per Revolution.	Lift and Force.	Approx. Weight.	Price.
1 Horse Power .	6-inch.	4-inch.	3-inch.	35 to 50	1.5	20 feet.	1275 lbs.	\$205.00
2 " " "	6 "	6 "	3 "	35 " 50	2.25	30 "	1350 "	230.00

Air Chamber with Tee for 3-inch Pipe, extra, \$7.50.

Horse Power alone weighs about 550 pounds. Sweeps about 60 pounds each.

Iron Horse Power, with one pole—for one horse . . . . .	\$90.00
Iron Horse Power, with two poles—for two horses . . . . .	93.00
With 10 feet 2-inch Wrought Iron Tumbling Shaft and face-plate at end, for 6, 8 and 10-inch stroke, extra. . . . .	10.00
With 10 feet 2-inch Wrought Iron Tumbling Shaft and 30 x 6 Driving Pulley at end and 2 Plummer Blocks . . . . .	20.00
2-inch Wrought Iron Tumbling Shaft, per foot, extra . . . . .	.75
Heavy Balance Wheel, 36 x 4½-inch, extra . . . . .	12.00
Plummer Blocks, extra . . . . .	3.00

## IRON HORSE POWER.

Diameter large wheel,  
31 inches.

Number teeth, 91.

Diameter pinion, 4½  
inches.

Number teeth, 14.

Price, \$55.00.

We can furnish larger  
sizes if desired. Send  
for prices.

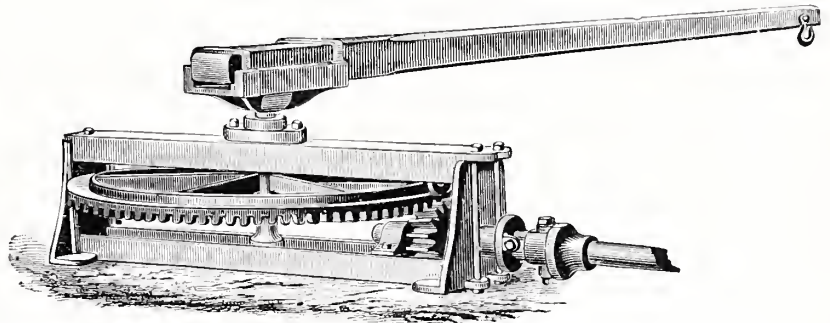


Fig. 1754.

Fig. 1754. The cut shows a very simple though thoroughly constructed one-horse or pony gear for operating any kind of agricultural machinery, as feed cutters, corn mills, etc., etc. We furnish it complete, as shown in cut, with universal joint and stub end to weld to horizontal shaft, and hard wood pole ten feet long. Weight, 333 pounds; frame, 38 x 12 inches, 10 inches high.

Order by this Catalogue Figure Number, stating size wanted.



“CHALLENGE” AND “ALERT” DOUBLE-ACTING HORIZONTAL FORCE PUMPS.

Fig. 1755 represents our Double-Acting “Challenge” Force Pump, with heavy cast iron base, and adapted for every purpose where a stationary Pump of this kind can be used about the house, factory, store, etc. The Pump itself is eight inches one way and about fourteen the other, and takes up very little room. For forcing water into a tank or reservoir, into an upper story, or into a bath-room, by reason of the small amount of room it requires, it will be much sought after.

It will be observed in this Pump the induction opening is above the lower valves, so they are submerged.

A malleable wrench, fitting all the nuts and couplings, goes with each Pump.

Always fitted Suction and Discharge for iron pipe, unless otherwise ordered.

Fig.	No.	Diameter Cylinder.	Suction.	Dis-charge.	Stroke.	Capacity per Stroke	IRON.	BRASS.
							Price.	Price.
1755	2	2½-in.	1½-in.	1-in.	4½-in.	¼ gal.	\$27.00	75.00
1755	4	3 “	1¾ “	1 “	4½ “	⅓ “	27.00	75.00
1755	8	4 “	1½ “	1¾ “	4½ “	½ “	28.00	90.00
1755	12	5 “	2 “	1½ “	5 “	⅝ “	42.00	110.00

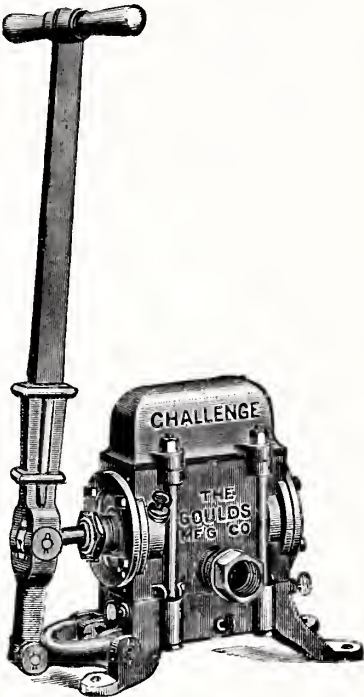


Fig. 1755.

Can furnish bolted to plank and fitted for hose if desired.  
“ALERT” FORCE PUMP.

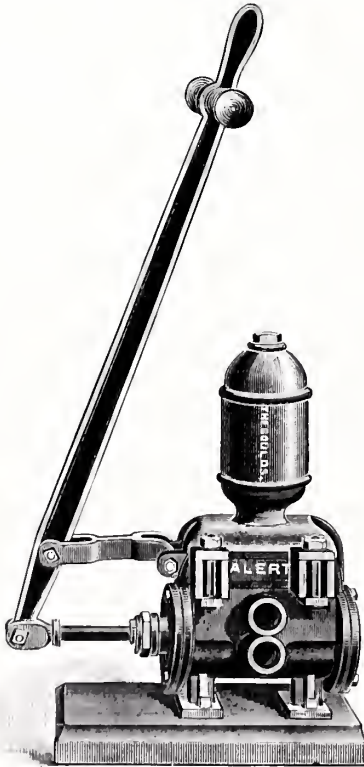


Fig. 1756.

Fig. 1756. As the cut implies, this new Pump is similar to the “Challenge,” which was first to be built and popularized, but instead of the expensive composition valves and valve seats, this Pump has leather valves. In general character it partakes of the Steam Pump style, the valves all being grouped together under the air chamber, and can be readily exposed to view without disturbing either the inlet or outlet pipes, by unscrewing the heavy brass nut on top of the air chamber, when the whole Pump can be taken apart.

The suction and discharge openings screwed for iron pipe, are on both sides of Cylinder (we plug one set) so that suction or discharge can be used on either or both sides, if necessary, or two pipes can be run from Pump, one to supply water at the Pump, and the other to run to a tank in another part of the house or building, thus being the same as any other Pump with two discharges. This little bundle of compactness and power occupies floor space of eight by twenty inches, and will work against any pressure up to 100 pounds. Always screwed for sizes of iron pipe named below, but can fit them for lead pipe or hose, if ordered.

No.	Diameter Cylinder.	Double Suction.	Double Discharge	Stroke.	Capacity per Str.	Iron. Price.	Brass. Price.
2	2½-inch.	1½-inch.	1-inch.	5-inch.	¼ gal.	\$16.00	60.00
4	3 “	1¾ “	1 “	5 “	⅓ “	18.00	65.00
6	3½ “	1½ “	1¾ “	5 “	½ “	24.00	80.00
8	4 “	1½ “	1½ “	5 “	⅝ “	31.00	90.00

We charge extra for brass nipples for lead pipe connections, also for half hose couplings, when ordered fitted for hose.

Order by this Catalogue Figure Number, stating size wanted.

# “ CHALLENGE ” DOUBLE-ACTING HORIZONTAL FORCE PUMP.

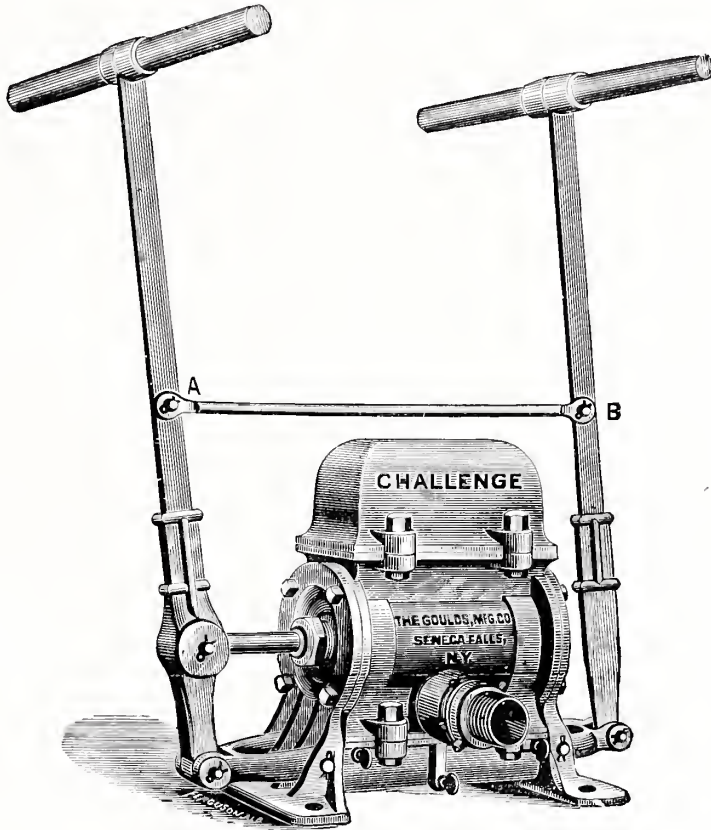


Fig. 1757.

The above cut represents the largest pattern of the celebrated “Challenge” Double-Acting Force Pumps, the very name of which implies something strong, durable and effective, and which must engage the attention of our many patrons and friends.

The cylinder is lined with brass ; the piston rod, valves and valve seats are of bronze ; the nuts on the bolts at the side are of brass, so that it will be seen all parts of the pump exposed to water are non-corrosive. This pump has only one stuffing box, so that it is less liable to leak than with two, and in case of such an accident, one set of valves would be in readiness at all events. For use on ship wharves, about factories, mills, warehouses, etc., it is capable of inestimable service. Both suction and discharge fitted for hose unless otherwise ordered. Can be fitted for wrought iron pipe if desired.

No.	Diameter Cylinder.	Suction.	Discharge.	Stroke.	Capacity per stroke.	Iron. Price.	Brass. Price.
12	5-inch.	2 -inch.	1½-inch.	5-inch.	¾ gallon.	\$45.00	125.00
16	6 “	2½ “	2 “	5 “	1¼ “	50.00	175.00

Order by this Catalogue Figure Number, stating size wanted.

“DUPLEX” BRASS WATER LIFTER.

AN AUTOMATIC PUMP OPERATED BY WATER PRESSURE.

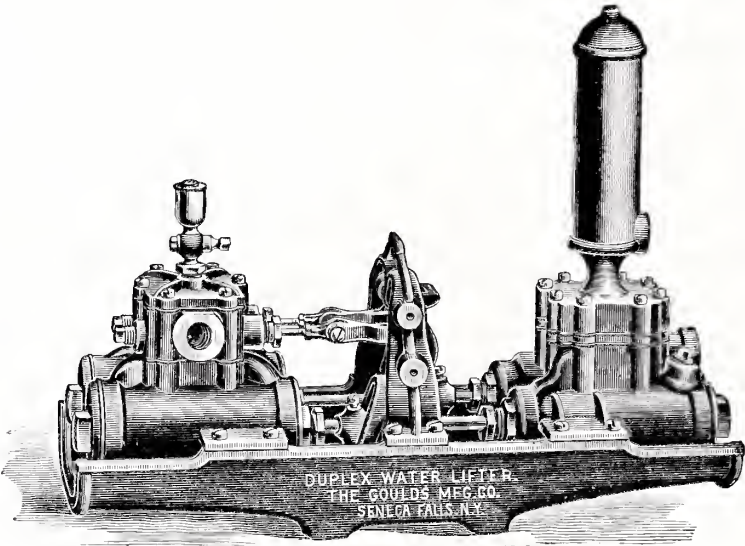


Fig. 1758.

We can but briefly sketch our new “Duplex” Water Lifter here. It is designed to pump automatically, and by water pressure, pure city water to a greater height than its natural pressure will deliver it, or by this same water pressure, pure cistern water, where this is preferable to general supply for domestic purposes, etc., to upper supply tanks, bath-rooms, etc. It dispenses with all noisy, cumbersome or offensive combinations of Engines and Pumps, and does its work noiselessly and automatically and withal without waste of water and attending expense.

It is designed after the well-known “Duplex” Steam Pump and operated by water pressure from city mains or windmill tower tanks. The water is conducted to Lifter, and after exerting its efficiency may be discharged through waste pipe to sewer, or equally as well utilized for the many ordinary requirements of the household.

Our system of piping, by which this waste water may be utilized on the same or higher level than Lifter, is fully described in our special catalogue, to which we would refer.

All parts are of bronze metal, except drip-pan underneath.

Size No.	Diam. of Power Cyls.	Diam. of Pump Cyls.	Stroke.	Pumping Capacity, Gals. per Hour.	Proportionate Capacity.		Pipe Openings.	Approx. Weight.	Price.
					Gallons Pumped.	Gallons Wasted.			
1	2 -in.	1½-in.	3-in.	150	10	26	½-in.	36 lbs.	\$41.50
2	2½ “	1¾ “	3 “	150	10	40	¾ “	40 “	43.00
3	2 “	2 “	3 “	350	10	10	1 “	46 “	50.00

“DUPLEX” WATER LIFTERS.

Same design as above ; with Brass-Lined Cylinders, and bronze or brass working parts. Extra large pumping capacity.

No.	Diam. of Power Cyls.	Diam. of Pump Cyls.	Stroke.	Pumping Capacity, Gals. per Hour.	Proportionate Capacity.		Size of Pipe Connections.				Approx. Weight.	Price.
					Gals. Pumped.	Gals. Wasted.	Power Cyls.		Pump Cyls.			
							Sup.	Exh.	Suc.	Dis.		
10	3-in.	2 -in.	4-in.	500	10	23	1-in.	1½-in.	1½-in.	1½-in.	177 lbs.	\$100.00
11	3 “	2½ “	4 “	800	10	15	1 “	1½ “	1½ “	1½ “	185 “	105.00
12	3 “	3 “	4 “	1100	10	10	1 “	1½ “	1½ “	1½ “	200 “	110.00

Send for Special Catalogue of “Duplex” Water Lifters, containing complete tables of pumping capacities, heights, etc.

Order by this Catalogue Figure Number, stating size wanted.



# “STANDARD” DOUBLE-ACTING SPRAY PUMP.

FOR SPRAYING TREES, POTATO AND COTTON PLANTS, ETC.

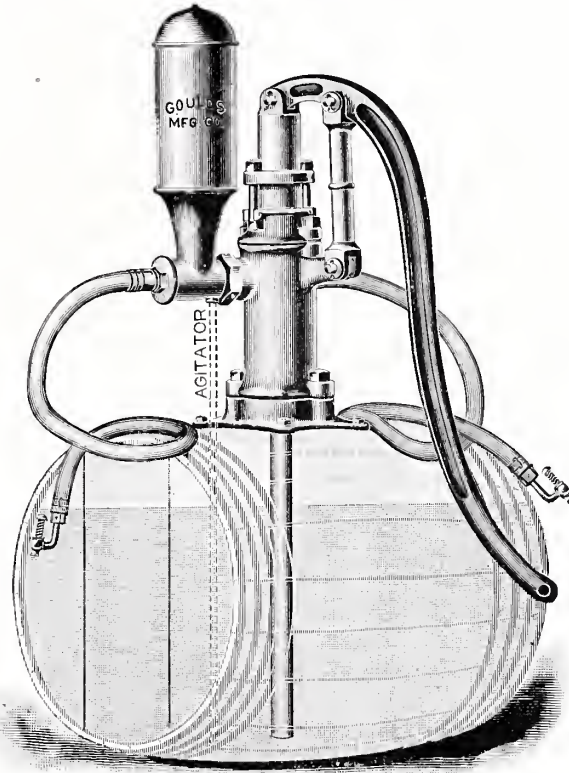


Fig. 1759.

We represent our New Double-Acting Force Pump, arranged for either hose or gas pipe discharge, for spraying trees, cotton plants, etc., with a solution of tobacco water, or water diluted with Paris green or any other poisonous mixture. This Pump is especially adapted for diffusing liquids or poisons of any kind upon trees, shrubs, or plants, affected by bugs, worms, insects, etc., and is capable of doing infinite more service than any of the smaller and cheaper pumps in the market, as it is of greater capacity, and being double-acting, throws a continuous and powerful stream, which can be diffused over a vast area, by means of spreaders or sprinklers. When used for spraying cotton plants, they should be screwed for iron pipe, and arranged with gas pipe arms and sprayers; and for spraying trees, fitted with hose nipples for attaching hose. We can furnish any fittings as ordered, at the lowest market rates.

Advise in orders whether wanted for hose or wrought iron pipe suction and discharges, and if pumps are wanted fitted complete for any special work we should be so instructed.

When ordered with brass-lined cylinder, add \$2.00 to List. With metal lower valve, \$1.00 net, extra. Suction can be fitted for hose, when so ordered. See Lists of Nozzles, Hose, Couplings, etc.

No.	Diameter Outer Cylinder.	Diameter Differential Plunger.	Stroke.	Suction for Pipe.	Double Hose Discharge.	Double Pipe Discharge.	Approximate Weight.	Price.
2	2½-inch.	1½-inch.	3-inch.	1-inch.	½-inch.	¾-inch.	30 lbs.	\$9.50

Order by this Catalogue Figure Number, stating size wanted.



# “STANDARD” DOUBLE-ACTING SPRAY PUMP.

FOR ORCHARD, VINEYARD OR FIELD SERVICE.

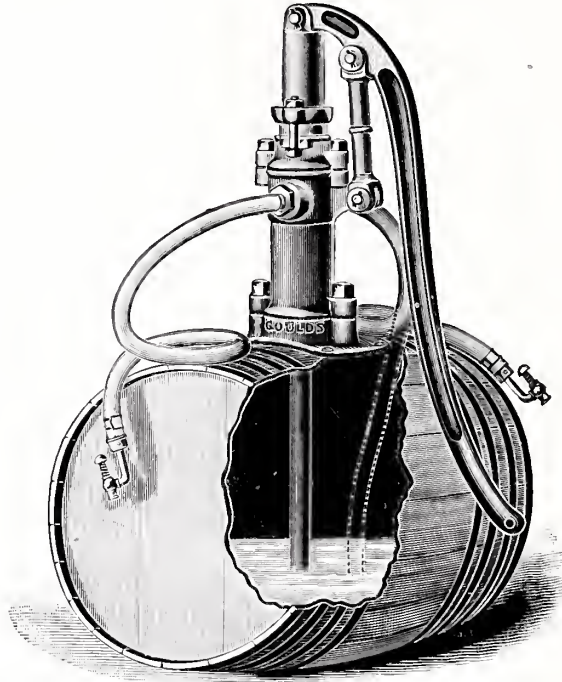


Fig. 1760.

Fig. 1760 represents our “Standard” Double-Acting Spray Pump which has been before the public several years, and was the first Pump designed for spraying purposes, and which is yet to be excelled by the many copies and improvements which others have striven to effect upon same.

We shall make this Pump this season with a new base, which will adapt it for either top or side of a barrel, and can also, when ordered, line the cylinder with brass, which is indispensable when used for disseminating strong fungicides.

No. 2, Pump only . . . . .	\$8.50
No. A-2, with 3 feet of 1-inch iron suction pipe, with brass strainer and 1 lead of $\frac{1}{2}$ -inch discharge hose 5 feet long, and Vermorel (or other) nozzle . . . . .	12.50
No. B-2, with 3 feet of 1-inch iron suction pipe, with brass strainer and 2 leads of $\frac{1}{2}$ -inch discharge hose, each 5 feet long, and Vermorel (or other) nozzles. . . . .	15.50
No. C-2, with 3 feet of 1-inch iron suction pipe, with brass strainer, 1 lead of $\frac{1}{2}$ -inch discharge hose 5 feet long, Vermorel (or other) nozzle and agitator . . . . .	14.00

When ordered with brass-lined cylinder, add \$2.00 to List. With metal lower valve, \$1.00 net, extra. Longer lengths of discharge hose can be furnished, when ordered, at extra price. Suction can be fitted for hose, when so ordered. See Lists of Nozzles, Hose, Couplings, etc. Barrel not included in price.

Order by this Catalogue Figure Number, stating size wanted.

# “STAR” DOUBLE-ACTING SPRAY PUMP.

FOR ORCHARD, VINEYARD OR FIELD SERVICE.

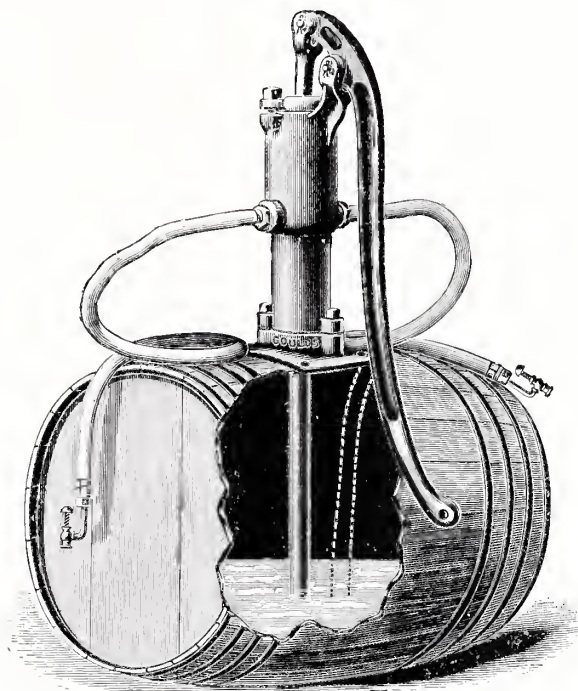


Fig. 1761.

Fig. 1761 represents our “Star” Double-Acting Spray Pump for orchard, vineyard or field service. This Pump is constructed with upper differential plunger working in brass chamber and having one-half the displacement of working plunger proper. This Pump has ample air chamber reservoir and is capable of giving effective service.

As shown in engraving, it has our new style base adapted for either head or side of barrel. Also fitted for double hose or pipe discharge. Can be employed with single or double lead of hose for spraying trees, bushes, etc., or with double pipe arms and spreaders for spraying cotton plants and the like.

Advise, in making order, whether wanted for hose or wrought iron pipe suction and discharges.

Suction can be fitted for hose when so ordered.

See Lists of Nozzles, Hose, Couplings, etc.

No.	Diameter Outer Cylinder.	Diameter Differential Plunger.	Stroke.	Suction for Pipe.	Double Hose Discharge.	Double Pipe Discharge.	Approximate Weight.	Price.
2	2½-inch.	1½-inch.	3-inch.	1-inch.	½-inch.	¾-inch.	25 lbs.	\$9.00

With Metal Lower Valve, \$1.00 net, extra. Brass-Lined Cylinder, add \$2.00 to List.

Order by this Catalogue Figure Number, stating size wanted.

“CLOCK” SPRAY PUMP.

FOR ORCHARD, VINEYARD OR FIELD SERVICE.

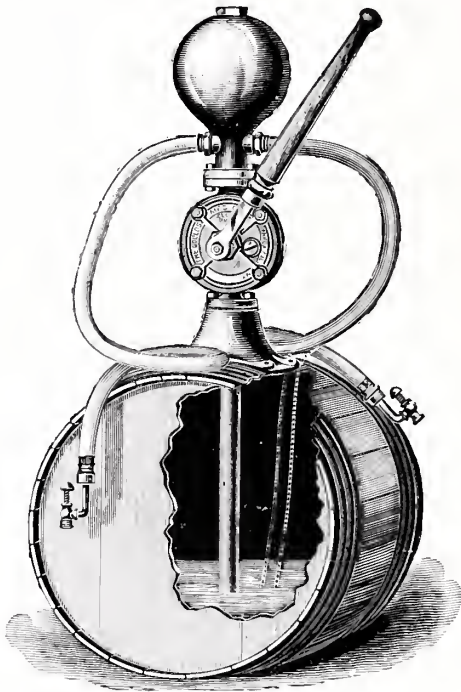


Fig. 1762.

Fig. 1762 represents a new Semi-Rotary Spray Pump that we call to the attention of the public for the first time this season. The particular points in connection with this Pump are that it has a large Air Chamber, and that the working parts of the Pump are made entirely of brass. The lever is also reversible and can be used at either right angle to the Pump or upright, as circumstances may require.

No. 1, Pump only . . . . .	\$10.00
“ 3, “ “ . . . . .	14.00
“ A-1, with 3 feet of ½-inch iron suction pipe, with brass strainer and 1 lead of ½-inch discharge hose, 5 feet long, and Vermorel (or other) nozzle . . . . .	14.00
“ A-3, with 3 feet of 1-inch iron suction pipe, with brass strainer, 1 lead of ½-inch discharge hose, 5 feet long, and Vermorel (or other) nozzle . . . . .	18.00
“ B-1, with 3 feet of ½-inch iron suction pipe, with brass strainer, 2 leads of ½-inch discharge hose, each 5 feet long, and Vermorel (or other) nozzles . . . . .	17.00
“ B-3, with 3 feet of 1-inch iron suction pipe, with brass strainer, 2 leads of ½-inch discharge hose, each 5 feet long, and Vermorel (or other) nozzles . . . . .	21.00
“ C-1, with 3 feet of ½-inch iron suction pipe, with brass strainer, 1 lead of ½-inch discharge hose, 5 feet long, Vermorel (or other) nozzle and agitator . . . . .	15.50
“ C-3, with 3 feet of 1-inch iron suction pipe, with brass strainer, 1 lead of ½-inch discharge hose, 5 feet long, Vermorel (or other) nozzle and agitator . . . . .	19.50

Longer lengths of discharge hose can be furnished when ordered, at extra price. See Lists of Nozzles, Hose, Couplings, etc. Barrel not included in price.

Order by this Catalogue Figure Number, stating size wanted.

# “HANDY” KNAPSACK SPRAY PUMP.

FOR ORCHARD, VINEYARD OR FIELD SERVICE.

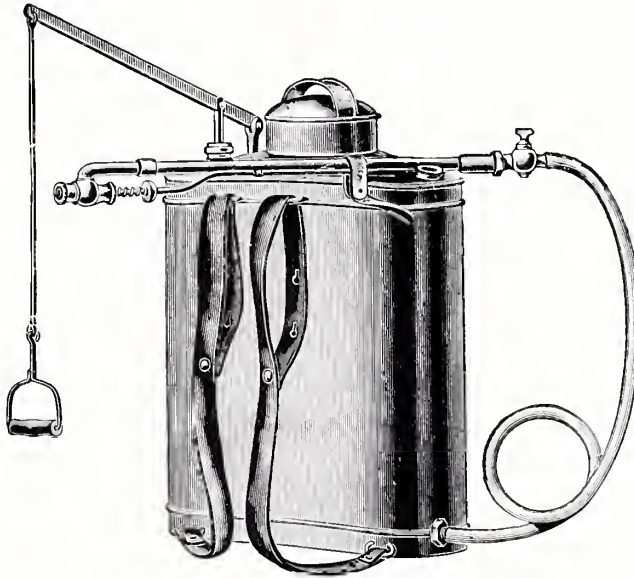


Fig. 1763.

Fig. 1763 represents a new and improved Knapsack Spray Pump, which we have designed and which experience will, we feel confident, prove to be the best Pump of this character upon the market. The Pump itself is made entirely of brass and copper, with rubber ball valves and metal plunger, all of which are easily accessible and can be, therefore, readily examined and repaired. It is so arranged and stayed in the reservoir that it is capable of doing long and continuous service and will not easily get out of order.

The discharge is at the bottom, and the Pump can therefore be entirely drained of the liquid. We can arrange Pump in the reservoir to be operated by either the right or left hand, as desired, although we shall make them, locating the Pump to be operated by the right hand, unless ordered otherwise.

The reservoir is made of heavy copper, and will hold about five gallons of liquid, although we can make them larger if desired, at an extra price.

We furnish each Pump with  $3\frac{1}{2}$  feet  $\frac{3}{8}$ -inch Discharge Hose, Vermorel Nozzle and Lance for a Degorger.

“Handy” Knapsack Sprayer, complete, as shown in cut . . . . . \$15.00

For Hose, Hose Pipes, etc., see their respective Lists.

Order by this Catalogue Figure Number, stating size wanted.



# SUCTION AND FORCE PUMP, ON BASE.

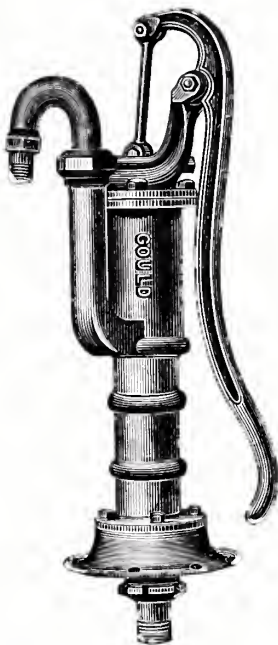


Fig. 1764.

Fig. 1764 represents a Force Pump of large capacity and very compact in form. It is a single-acting pump having two cylinders and plungers, though from the internal arrangement and division of cylinders it has the effect of a double-acting pump—in the way of producing a continuous and steady stream of water. The top is open so as to avoid the necessity of a stuffing box, and with the working parts of brass, and also a brass valve seat, it presents a very durable and capacious pump.

	No.	Diam. Cylinder.	Suction.	Discharge.	Stroke.	Iron.	Brass Cyls. and Pistons.	Brass.
						Price.	Price.	Price.
Fig. 1764	2	2½-in.	1½-in.	1 -in.	6-in.	\$10.00	22 00	\$25.00
" 1764	6	3½ "	1½ "	1½ "	6 "	16.00	39.00	43.00

# LIGHTNING AIR PRESSURE GENERATOR AND JOHNSON FORCE PUMP.

This little Generator, Fig. 1765, is made of brass, composition and iron, and has a displacement of about 30 cubic inches of air each complete stroke, and will be found very serviceable as well as marvelously quick and easy of operation. In one minute's time it ought to generate a pressure of about 15 pounds in a tank or keg of 15 or 20 gallons capacity, and has a compass under proper conditions of 35 pounds per square inch. For a hand machine nothing is so handy and available for all kinds of service within the range of its ability. Space required, about eight inches square, except when lever is out-stretched. If in want of such a compressor, please let us hear from you. Each one guaranteed perfect on leaving the factory.

Fig. 1765. As shown, 3-inch diameter, 4-inch stroke . . . . . \$10.00

Supplied with connection for Air Hose.

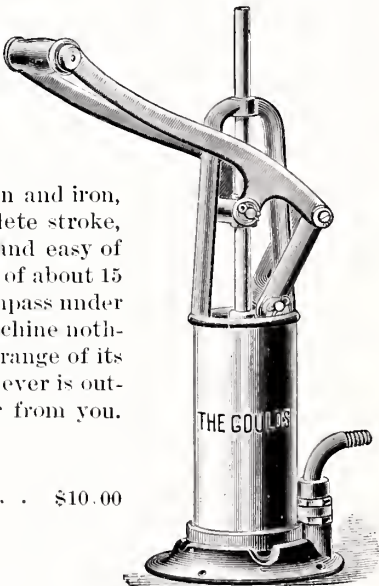


Fig. 1765.

Order by this Catalogue Figure Number, stating size wanted.

# PORTABLE GARDEN FORCE PUMP AND AQUAJECT.

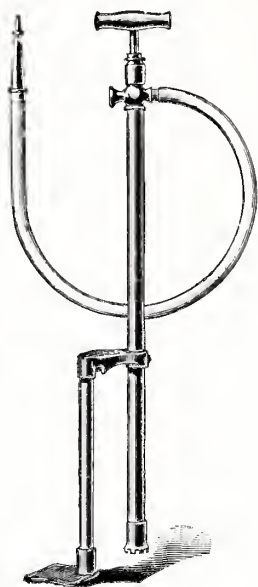


Fig. 1766.

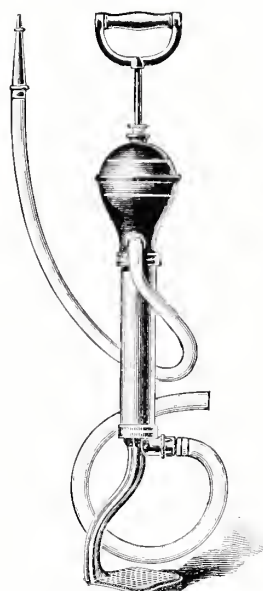


Fig. 1767.

Fig. 1766 represents our Portable Garden Force Pump for washing windows and wagons, for use in conservatories, gardens, etc., and for forcing liquids upon trees and bushes blighted by insects, bugs or worms. They are made of brass, which gives them a handsome appearance and renders them impervious to the action of acids and liquors, and will not rust or corrode. With this pump there is no suction hose, as the pump sets directly in the water, thus always securing a perfect suction. With each pump we furnish the extras given in the table below, although they could be changed to suit requirements of customers. Longer lengths of hose are charged extra.

Fig. 1767 represents a very useful and almost indispensable adjunct to every household, factory and warehouse in the world. It is a very compact and effective force pump, so small, weighing only eight pounds, that it can be carried about anywhere without the least difficulty, and at the same time susceptible of the most important results. It is difficult to enumerate the many services this Pump will perform; but for washing windows, wagons, sprinkling lawns, in conservatories, gardens, and for incipient fires, it has no equal.

With each pump is sent suction and discharge hose connected, so that it requires no labor to put in immediate operation. Longer lengths of hose can be furnished if desired.

Fig. 1766. With 3 feet  $\frac{1}{2}$ -inch discharge hose, brass discharge pipe and sprinkler . . . . Each. \$9.00

" 1767. With 2 $\frac{1}{2}$  feet  $\frac{3}{4}$ -inch suction, and 3 feet  $\frac{3}{8}$ -inch discharge hose, brass discharge pipe and sprinkler . . . . . Each. 9.00

All the parts liable to impair the usefulness of the Pump by rust or corrosion, are made of brass.

Order by this Catalogue Figure Number, stating size wanted.

GASFITTERS' PROVING PUMPS.

WITH MERCURY GAUGE.

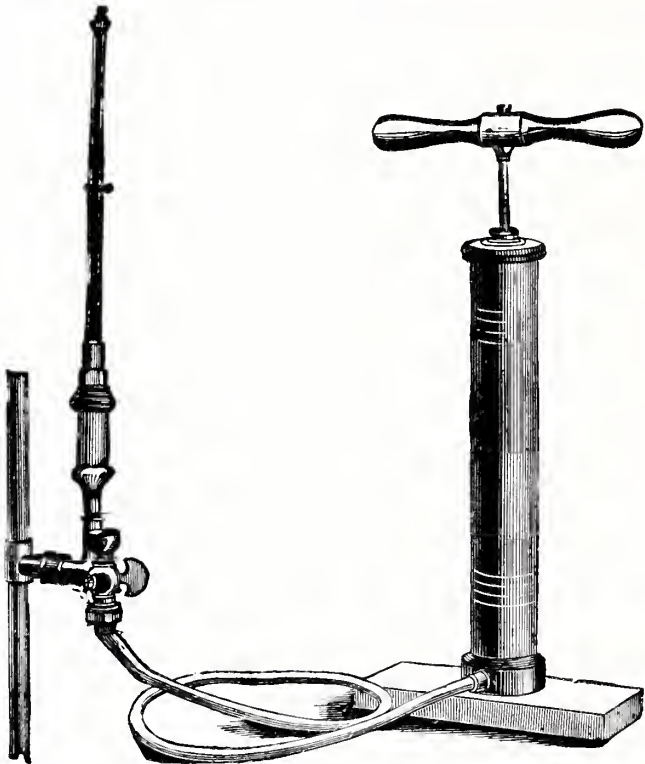


Fig. 1768.

SPRING TEST GAUGE.



Fig. 1769.

	With Mercury Gauge.	With Spring Test Gauge.
Gauge, with Patent Cock and Proving Pump, complete . . .	\$16.00	18.00
Gauge only . . . . .	6.00	8.00
Proving Pump, with four feet of Hose . . . . .	10.00	10.00

Order by this Catalogue Figure Number, stating size wanted.

BRASS ALE, AND PRESSURE OR TEST PUMPS.

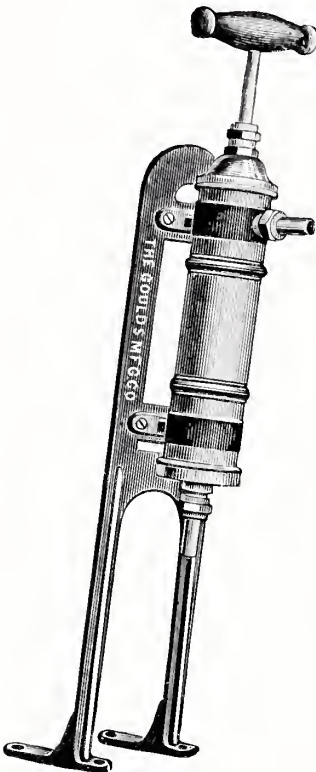


Fig. 1770.

Fig. 1770 shows a new and improved Brass Ale or Beer Pump, made with solid brass piston rod, handsomely finished and polished, and fitted with first-class valves.

Fig. 1770. 2½-inch bore, 8-inch stroke each . . \$7.00

We furnish these pumps with or without the stands, as ordered.

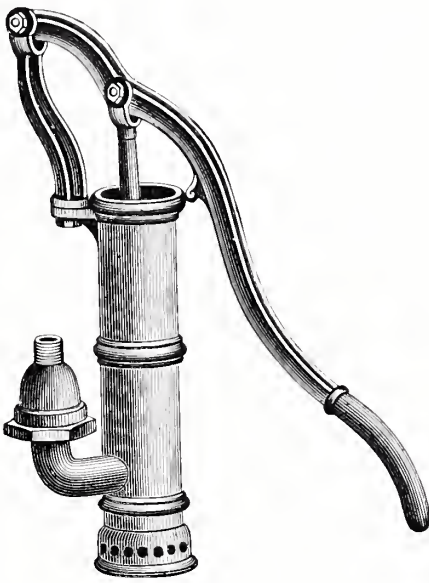


Fig. 1771.

Fig. 1771 represents an entirely new model of Plumbers' Force Pump, for removing obstructions in waste or water pipes. The working parts are made of brass. The pipe to be cleared is connected to the pump by hose, while the pump is placed in a vessel of water. The discharge is always fitted for ¾-inch hose coupling.

Fig. 1771. 2-inch cylinder, 5-inch stroke . . . . . \$14.00

HYDRAULIC TEST PUMP.

Fig. 1772 represents a new Pressure or Test Pump, and, as indicated by our illustration, it is of compact build and of commensurate strength for work for which it is designed.

It has a revolving top, admitting its being worked in any position, and a sectional lever, which can be changed to give greatest leverage. The suction and discharge valves (flanged and bolted to cylinder) are of a new and improved type, with brass valve seats, poppets and caps. The pump should be placed within short suction distance of water, or on a level with it, and will be found invaluable to the boiler maker or user for testing the condition of boilers, vessels, etc., for cleaning out pipes, etc., etc. It will generate a cold water pressure of 500 pounds per square inch.

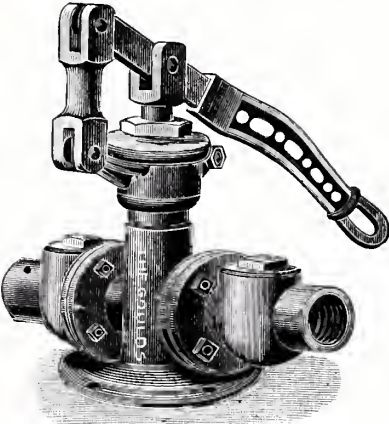


Fig. 1772.

	No.	Diam. Cyl.	Suc. and Dis.	Stroke.	Price.
Fig. 1772. .	0	¾-in.	1-in.	5-in.	\$20.00
" 1772. .	1	1 "	1 "	5 "	21.50
" 1772. .	2	1¼ "	1 "	5 "	22.50
" 1772. .	3	1½ "	1 "	5 "	27.50

Order by this Catalogue Figure Number, stating size wanted.



DOUBLE-ACTING RAILROAD FORCE  
PUMP.

FOR MANUAL OR MACHINE POWER.

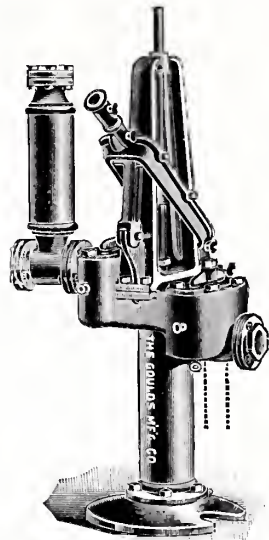


Fig. 1773.

Under 1773 we illustrate our new Double-Acting Suction and Force Pump, which we offer with brake and wood handles for manual power, and with strap rod (which may replace brake) for wind-mill or other power. Pump has few parts, reducing incidental care or repair to smallest limits.

The cylinder, with suction and discharge valve chambers, is in one piece, to which the bearer top is securely bolted. The valve and valve seats of bronze with rubber discs and springs, are arranged in valve chambers on either side of cylinder under single clamp, rendering them easy of access. The brass-cased rod is in one piece with forged cross-head. Suction and discharge may be piped vertically or horizontally as desired.

It will be noticed we give below, limit stroke, also safe working stroke, where operated by wind-mill, etc.

Diam. of Cylinder.	STROKE.		Suction.	Dis	Capacity per Rev.	*Lift and Force.	Approx. Weight.	Iron.	Brass Lined Cylinder.
3-inch.	14-in.	for 12-in. stroke Mill.	1½-in.	1½-in.	¾-gal.	100 feet.	325 lbs.	\$50.00	58.00
4 "	14 "	12 "	2½ "	2 "	1½ "	100 "	400 "	65.00	72.00
3 "	18 "	16 "	1½ "	1½ "	1½ "	100 "	375 "	60.00	67.00
4 "	18 "	16 "	2½ "	2 "	2 "	100 "	437 "	70.00	77.00

\* Total lift and force from water to point of discharge.

Order by this Catalogue Figure Number, stating size wanted.

# COUNTERSHAFT AND FACE-PLATE.

FOR OPERATING POWER PUMPS.

Fig. 1774 represents a light Countershaft consisting of hangers, tight and loose pulleys, face-plate, wrist pin and stub rod for driving any of our smaller Power Pumps.

Can change sizes of pulleys enumerated in our tables to meet requirements at proportionate prices.

\*Smaller Cylinders proportionally deeper.

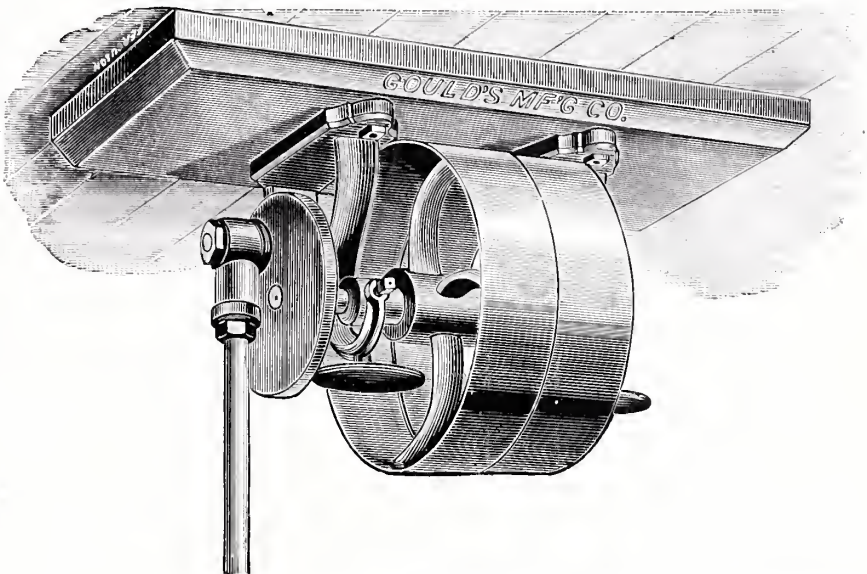


Fig. 1774.

No.	Drop of Hanger.	Pulleys, Each.	Stroke.	*Will Operate.	Approximate Weight.	Price.
1	12-inch.	16 x 3½ inches.	{ 6-inch.	4-inch Cyl., 55 ft.	160 lbs.	\$30.00
2	12 "	18 x 4 "	{ 8 "	5 " " 25 "	205 "	35.00
			{ 6 "	4 " " 70 "		
			{ 8 "	5 " " 50 "		
3	12 "	22 x 5 "	{ 6 "	4 " " 100 "	240 "	45.00
			{ 8 "	5 " " 50 "		
			{ 10 "	6 " " 25 "		

## GEARED COUNTERSHAFT.

Fig. 1775 represents our Countershaft, with spur gear, pinion, plunger blocks, tight and loose pulleys, face-plate with pin for varying stroke, connecting rod, strap head and sling, which may be used as shown in engraving, overhead, for driving any of our larger sizes Vertical Power Piston Pumps, located underneath, or inverted, placed over well for working single or double-acting Pumps at considerable depth.

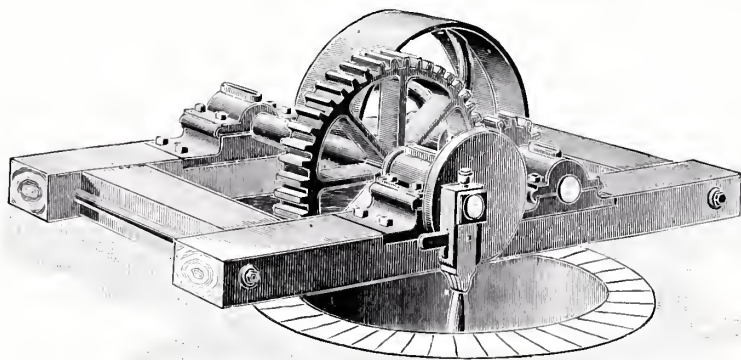


Fig. 1775.

Always specify approximate duty to which these working heads are intended. Size of Pump, duty, etc., will determine speed. No. 2 has heavy oak frame for bed plate with wrought iron stay rods. \*No. 2 Working Head is practically strong enough to operate any suitable pumps to such depth as they are adapted — this is told in connection with pumps to which we refer.

No.	Stroke.	Diameter Large Gear.	Diameter Small Gear.	Face of Gears.	Pulleys, Each.	Will operate.	Approx. Weight.	Price.
1	10 in.	12-in.	4 in.	2½-in.	16 x 4 in.	4-in. Cyl. 90 ft.	275 lbs.	\$50.00
1A	12, 14 or 16 "	12 "	4 "	2½ "	16 x 4 "	4 " " 60 "	350 "	60.00
2	10 "	22 "	7½ "	3½ "	22 x 5½ "	" "	950 "	125.00
2A	12, 16 or 18 "	22 "	7½ "	3½ "	22 x 5½ "	" "	1100 "	140.00
2B	20, 22 " 24 "	22 "	7½ "	3½ "	22 x 5½ "	" "	1230 "	150.00
2C	26, 28 " 30 "	22 "	7½ "	3½ "	22 x 5½ "	" "	1350 "	160.00
2	42 "	" "	" "	" "	45 x 8 "	" "	" "	200.00

Order by this Catalogue Figure Number, stating size wanted.

# GOULDS POWER WORKING HEAD AND PUMP.

FOR OPEN, BORED OR DRILLED WELLS.

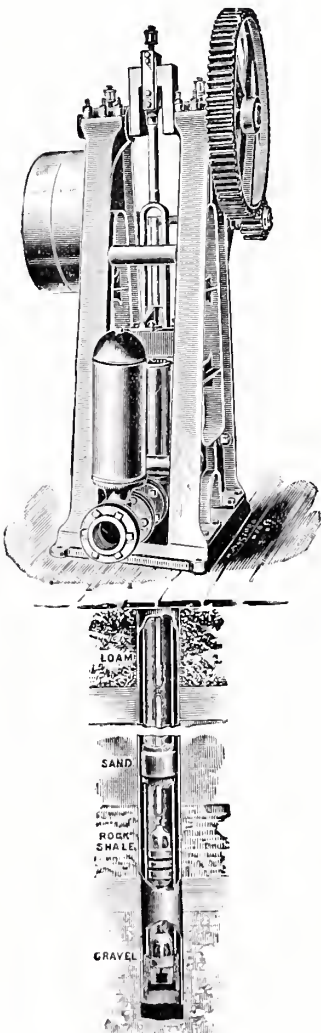


Fig. 1776.

Our illustration represents the application of Power Working Head and Pump to deep wells. The apparatus consists of Fig. 1776 Power Working Head, above, with pipe and rod connected to and operating Fig. 1783, Brass Artesian Cylinder at bottom of well. This appliance is offered to manufacturing establishments for general water supply, and will oftentimes afford the only pure supply obtainable. Power generated from either water wheel or steam engine is here used in the most economical manner.

The special features of Fig. 1776, Power Working Head, are shown in the construction of differential plunger and rod, which call for even delivery and distribution of power at both ends of the stroke.

Fig. 1783, Brass Artesian Cylinder, is especially designed and recommended to be used with this type of Working Head. The pipe is of greater diameter than the Cylinder, which admits of Plunger and lower valve being drawn out without disturbing pipe connections. A strainer or drive well point may be placed at bottom of lower valve.

The selection of Cylinder will be governed by bore and depth of well.

We recommend the use of Wood Sucker Rod with forged couplings.

We give prices on Working Head, Cylinder, etc., separately, not including Connecting Pipe, Rod or Couplings, which we can supply to order.

*Stroke.	*Suction.	*Dis-charge.	Geared.	Pulleys.	R. P. M. Crank Shaft.	Approx. Weight.	*Price.
16-in.	8-in.	3-in.	5 to 1	30 x 6-in.	30	3000 lbs.	

\*Price upon application.

\*We give the limit stroke — suction and discharge may be varied at pleasure.

For sizes and prices of Fig. 1783 Cylinder, see page 609.

Order by this Catalogue Figure Number, stating size wanted.

# WINDMILL PACKING HEADS.

WITH BRASS-CASED RODS.



Fig. 1777.

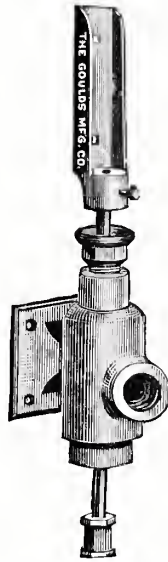


Fig. 1778.

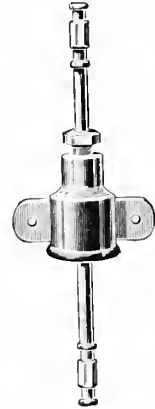


Fig. 1779.

We represent herewith our several styles Windmill Packing-Box Heads with Brass Glands and Brass-Cased Rods.

As shown, Figs. 1777 and 1778 are regularly fitted with Windmill slide for wood rod and coupling on lower end for  $\frac{1}{16}$ -inch rod.

Fig. 1779 is provided with  $\frac{1}{2}$ -inch rod coupling at top and  $\frac{1}{16}$ -inch rod coupling at bottom.

The discharge from Fig. 1779 is made by a Tee placed in pipe below. These packing-box heads may be used in open, bored or drilled wells.

	Pipe.	*Lift and Force.	Approx. Weight.	8-Inch Stroke.	10-Inch Stroke.	12-Inch Stroke.
				Price.	Price.	Price.
Fig. 1777 . . .	1 $\frac{1}{4}$ -in.	2 $\frac{1}{2}$ -in. Cyl. 100 ft.	18 lbs.	\$4.00	5.00	6.00
" 1778 . . .	1 $\frac{1}{4}$ "	3 " " 60 "	20 "	4.00	5.00	6.00
				1 or 1 1-4-Inch.	1 1-2-Inch.	2-Inch.
				Price.	Price.	Price.
" 1779 . . .	. .	2 $\frac{1}{2}$ " " 100 "	6 "	3.00	3.25	3.50
" 1779 . . .	. .	3 " " 60 "	6 "	3.00	3.25	3.50

\* Depth of wells to which Heads may be adapted by placing Cylinders within 15 or 20 feet of water or total lift and force from supply to point of delivery.

## GOULDS GAS PIPE COUPLING WITH GUIDE.

These couplings are strongly recommended where a lower cylinder is used in deep wells, as it prevents piston rod from swaying. Cannot be used with Fig. 1783 cylinder.



Fig. 1780.

SIZE. . . . .	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Fig. 1780. Price each . . . . .	\$0.75	1.00	1.25	2.00	2.75

Order by this Catalogue Figure Number, stating size wanted.



# GOULDS ARTESIAN WELL WORKING HEAD.

WITH DOUBLE ROD GUIDE AND POWER CONNECTION.



Fig. 1781.

Fig. 1781 represents our new Deep Well Working Head, especially designed to use with our Artesian Pump Cylinders. The piston rod is kept in perfect alignment by the double guides at side, while the stuffing box below adapts it for forcing equally as well as raising water. The power attachment is hinged and made to fit the wood rod of Windmill, though it may be readily adapted for any other power and connecting rod. By providing outlet in Head we dispense with expense and annoyance of lower Tee discharge common in other types. Wood Rod Coupling not included in prices given below.

No.	Stroke.	Pipe.	* Lift and Force.	Approximate Weight.	Price.
1	16-inch.	2, 2½ or 3 -inch.	2½-in. Cyl., 300 ft.	46 lbs.	\$15.00
2	24 "	3½, 4 " 4½ "	4½ " " 250 "	110 "	25.00
2	30 "	3½, 4 " 4½ "	4½ " " 250 "	115 "	30.00
3	24 "	5, 5½ " 6 "	5½ " " 200 "	135 "	30.00
3	30 "	5, 5½ " 6 "	5½ " " 200 "	140 "	35.00
3	36 "	5, 5½ " 6 "	5½ " " 200 "	145 "	40.00

See page 609 for sizes and prices of Fig. 1783 Brass Artesian Pump Cylinder to use with this Head.

\* Depth of wells to which Working Heads may be adapted by placing Cylinders within fifteen or twenty feet of water, or total lift and force from supply to point of delivery.

# GOULDS POWER WORKING HEAD.

WITH DIFFERENTIAL PLUNGER.

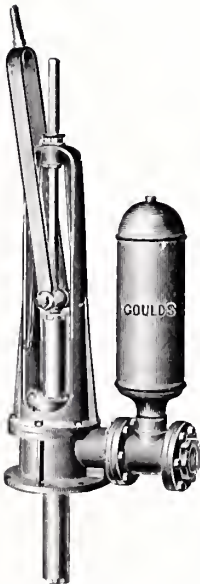


Fig. 1782.

In Fig. 1782 we illustrate our new Power Pump Head with Differential Plunger for operating Fig. 1783 Artesian Cylinder (see page 609) or other long stroke Working Cylinders in Deep Wells.

We should always be advised diameter of Lower Working Cylinder, that we may proportionate this Upper Differential Plunger to have one-half the area or displacement of plunger in lower cylinder. This contributes to even delivery of water and distribution of power on both up and down strokes, relieving Working Head, Connecting Pipe and Cylinder of uneven strain and shock in working.

Pump Head may be operated by Windmill or other machine power, transmitted by our Fig. 1775, Geared Countershaft, as shown page 605.

Stroke.	Suction.	Discharge.	* Lift and Force.	Approximate Weight.	Price.
24-inch.	2 to 6-inch.	2 to 4-inch.	3½-in. Cyl., 400 ft.	406 lbs.	\$100.00
30 "	2 " 6 "	2 " 4 "	4½ " " 300 "	424 "	115.00
36 "	2 " 6 "	2 " 4 "	5½ " " 200 "	450 "	135.00
42 "	2 " 6 "	2 " 4 "	4½ " " 400 "	. . .	175.00

\* Depth of well to which Working Head may be adapted by placing Cylinder within fifteen or twenty feet of water, or total lift and force from supply to point of delivery.

Order by this Catalogue Figure Number, stating size wanted.

# SPECIAL ARTESIAN WELL BRASS CYLINDERS.

## PLUNGERS FITTED WITH BRASS BALL VALVES.

The Artesian Cylinder is not new or untried, but is coming daily into more general use for all classes of deep and shallow well pumping. Experience has afforded many examples of costly, yet unsatisfactory pumping outfits, where elaborate working heads have been used over commonplace cylinders, and the lesson has not been lost.

The Cylinder is the real working engine of any pumping plant, and the advantages of the Artesian Cylinder may be briefly cited in the comparative saving of cost of drilling and casing a small well and a large one; the difference between the maintenance of a pump cylinder which will give satisfactory service for years without repacking, and one which requires constant attention and repairs; and the economy of power in operating a small cylinder with large openings which will give its full volume of water with each stroke, as against a larger pump cylinder with small openings which may give a half or less.

The cylinder shell or body is of seamless drawn brass tube of proportionate strength with brass caps; the plunger (packed with leather cups) and lower valve of bronze metal, are removable, while perfectly finished brass ball valves complete each.

The pipe is of greater diameter than cylinder, which admits of plunger and lower valve being drawn up without disturbing pipe connections; while its area, lessened by displacement of rod, is still equal to cylinder, thus providing for unobstructed flow of water. A strainer or drive well point may be placed at bottom of lower valve, while we recommend the use of wood rod with forged couplings, though these are not included in our List given below.

To inside diameter of pump chamber add  $1\frac{1}{2}$  inch for outside diameter of caps. A clearance of  $\frac{1}{2}$  inch should be allowed over this where used inside of well casing.

We can furnish nicely-finished ash rods of any desired length, together with necessary forged couplings. See List of Couplings.



Fig. 1783.

	Inside Diam. Pump Chamber.	Maximum Stroke.	Length Pump Chamber.	Inside Diam. Sue. and Dis- charge Pipes.	Inside Diam. Well Casing.	Adapted for Square Wood Rod.	Gal. per Stroke.	Lift and Force.	Approximate Weight. Pounds.	All Brass. Price.
Fig. 1783. . .	$1\frac{1}{2}$ -in.	16-in.	32-in.	$1\frac{1}{2}$ -in.	$3\frac{1}{2}$ -in.	.	.10		15	\$15.00
" 1783. . .	$1\frac{3}{4}$ "	16 "	32 "	2 "	$3\frac{3}{4}$ "	1-in.	.16		17	18.00
" 1783. . .	2 "	16 "	32 "	$2\frac{1}{2}$ "	4 "	$1\frac{1}{2}$ "	.27		22	24.00
" 1783. . .	$2\frac{1}{4}$ "	16 "	32 "	3 "	$4\frac{1}{2}$ "	1 $\frac{1}{2}$ "	.41		35	32.00
" 1783. . .	3 "	16 "	32 "	$3\frac{1}{4}$ "	$5\frac{1}{8}$ "	$1\frac{3}{4}$ "	.50		50	45.00
" 1783. . .	$3\frac{1}{4}$ "	16 "	36 "	$3\frac{1}{2}$ "	$5\frac{3}{16}$ "	2 "	.57		57	50.00
" 1783. . .	$1\frac{1}{4}$ "	24 "	40 "	2 "	$3\frac{1}{2}$ "	1 "	.25		17	21.00
" 1783. . .	2 $\frac{1}{4}$ "	24 "	40 "	$2\frac{1}{2}$ "	4 "	$1\frac{1}{2}$ "	.41		31	30.00
" 1783. . .	$2\frac{3}{4}$ "	24 "	40 "	3 "	$4\frac{1}{2}$ "	$1\frac{1}{2}$ "	.61		40	38.00
" 1783. . .	3 "	24 "	44 "	$3\frac{1}{4}$ "	$5\frac{3}{16}$ "	1 $\frac{1}{2}$ "	.73		57	50.00
" 1783. . .	$3\frac{1}{4}$ "	24 "	44 "	$3\frac{1}{2}$ "	$5\frac{3}{16}$ "	2 "	.86		47	55.00
" 1783. . .	$3\frac{3}{4}$ "	24 "	48 "	4 "	$5\frac{5}{8}$ "	$2\frac{1}{4}$ "	1.15		80	65.00
" 1783. . .	4 "	24 "	48 "	$4\frac{1}{2}$ "	6 $\frac{1}{4}$ "	$2\frac{1}{2}$ "	1.47		107	75.00
" 1783. . .	$4\frac{1}{4}$ "	24 "	48 "	5 "	$6\frac{3}{8}$ "	3 "	1.84		135	86.00
" 1783. . .	$2\frac{1}{4}$ "	30 "	46 "	3 "	$4\frac{1}{2}$ "	$1\frac{1}{2}$ "	.77		46	45.00
" 1783. . .	3 "	30 "	50 "	$3\frac{1}{4}$ "	$5\frac{1}{8}$ "	$1\frac{1}{2}$ "	.92		63	55.00
" 1783. . .	$3\frac{1}{4}$ "	30 "	50 "	$3\frac{1}{2}$ "	$5\frac{3}{16}$ "	2 "	1.06		52	60.00
" 1783. . .	$3\frac{3}{4}$ "	30 "	54 "	4 "	$5\frac{5}{8}$ "	$2\frac{1}{4}$ "	1.44		86	75.00
" 1783. . .	4 $\frac{1}{4}$ "	30 "	54 "	$4\frac{1}{2}$ "	$6\frac{1}{4}$ "	$2\frac{1}{2}$ "	1.84		114	85.00
" 1783. . .	$4\frac{1}{2}$ "	30 "	54 "	5 "	$6\frac{3}{8}$ "	3 "	2.30		146	100.00
" 1783. . .	$5\frac{1}{4}$ "	30 "	54 "	6 "	$8\frac{1}{4}$ "	$3\frac{1}{2}$ "	3.26		219	115.00
" 1783. . .	$3\frac{1}{2}$ "	36 "	56 "	$3\frac{1}{2}$ "	$5\frac{1}{8}$ "	2 "	1.30		60	70.00
" 1783. . .	$3\frac{3}{4}$ "	36 "	60 "	4 "	$5\frac{3}{8}$ "	$2\frac{1}{4}$ "	1.72		94	90.00
" 1783. . .	4 $\frac{1}{4}$ "	36 "	60 "	$4\frac{1}{2}$ "	$6\frac{1}{4}$ "	$2\frac{1}{2}$ "	2.21		122	100.00
" 1783. . .	$4\frac{1}{2}$ "	36 "	60 "	5 "	$6\frac{3}{8}$ "	3 "	2.76		158	125.00
" 1783. . .	$5\frac{1}{4}$ "	36 "	60 "	6 "	$8\frac{1}{4}$ "	$3\frac{1}{2}$ "	3.90		235	150.00
" 1783. . .	$3\frac{3}{4}$ "	42 "	66 "	4 "	$5\frac{5}{8}$ "	$2\frac{1}{4}$ "	2.00		104	100.00
" 1783. . .	4 $\frac{1}{4}$ "	42 "	66 "	$4\frac{1}{2}$ "	$6\frac{1}{4}$ "	$2\frac{1}{2}$ "	2.60		134	115.00
" 1783. . .	$4\frac{1}{2}$ "	42 "	66 "	5 "	$6\frac{3}{8}$ "	3 "	3.22		170	130.00
" 1783. . .	$5\frac{1}{4}$ "	42 "	66 "	6 "	$8\frac{1}{4}$ "	$3\frac{1}{2}$ "	4.56		251	180.00
" 1783. . .	$7\frac{3}{8}$ "	24 "	36 "	8 "	$9\frac{3}{8}$ "	5 "	5.00		260	.
" 1783. . .	7 $\frac{1}{4}$ "	36 "	56 "	8 "	$9\frac{3}{8}$ "	5 "	7.50		300	.

Any depth well for which suitable Working Heads may be provided.

Order by this Catalogue Figure Number, stating size wanted.

# IMPROVED PUMP CYLINDERS AND WORKING BARRELS.

SHALLOW WELL PUMP CYLINDERS. "A" PLUNGER—Figs. 1784, 1785 and 1786.

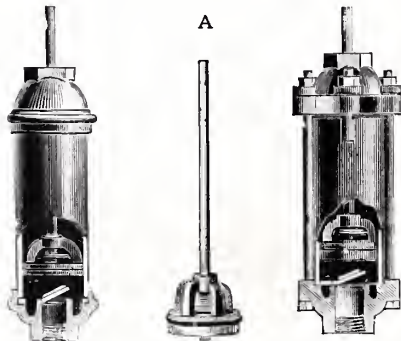


Fig. 1784. Fig. 1785. Fig. 1786.

No.	Size, Inches.	Pipe, Inches.	Iron.	Brass Body Iron Plunger and Att's.	Brass Body Iron Att's.	All Brass.
1	2¼ x 9	1	\$4.00	7.50	8.25	9.00
2	2½ x 9	1¼	4.35	8.00	8.75	9.50
3	2¾ x 9	1½	4.70	8.75	9.75	10.50
4	3 x 9	1¾	5.00	9.50	10.50	11.50
5	3¼ x 9	1¾	5.30	10.50	11.50	12.50
6	3½ x 9½	1½	5.60	11.50	12.50	14.00
7	3¾ x 10	1½	5.90	13.00	14.00	15.50
8	4 x 10	1½	6.50	14.00	15.00	17.00

SHALLOW WELL PUMP CYLINDERS. "B" PLUNGER—Figs. 1787, 1788 and 1789.

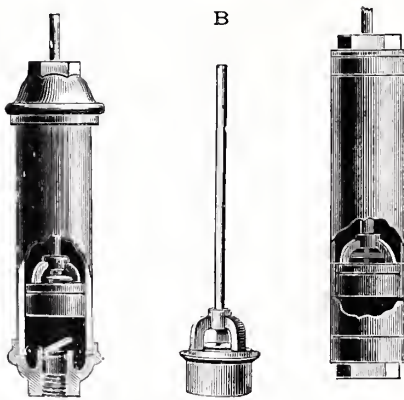


Fig. 1787. Fig. 1788. Fig. 1789.

No.	Size, Inches.	Pipe, Inches.	Iron.	Brass Body Iron Plunger and Att's.	Brass Body Iron Plunger and Iron Att's.	All Brass.
1	2¼ x 12	1	\$5.75	10.50	11.50	13.00
2	2½ x 12	1¼	6.00	11.50	12.50	14.00
3	2¾ x 12	1½	6.50	11.75	13.25	15.00
4	3 x 12	1¾	7.00	12.75	14.25	16.25
5	3¼ x 12	1¾	7.50	14.00	15.00	17.50
6	3½ x 12	1½	8.00	15.50	17.50	20.00
7	3¾ x 12	1½	8.50	18.00	20.50	23.50
8	4 x 12	1½	9.25	21.50	24.00	27.50
1	2¼ x 14	1	6.25	11.25	12.50	14.00
2	2½ x 14	1¼	6.50	11.75	13.00	14.50
3	2¾ x 14	1½	7.00	12.50	14.00	15.75
4	3 x 14	1¾	7.50	13.50	15.00	16.75
5	3¼ x 14	1¾	8.00	15.00	16.75	18.25
6	3½ x 14	1½	8.50	16.50	19.00	21.50
7	3¾ x 14	1½	9.00	20.25	22.75	25.00
8	4 x 14	1½	10.00	23.75	27.00	29.50

DEEP WELL PUMP CYLINDERS. "C" PLUNGER—Figs. 1790, 1791 and 1792.

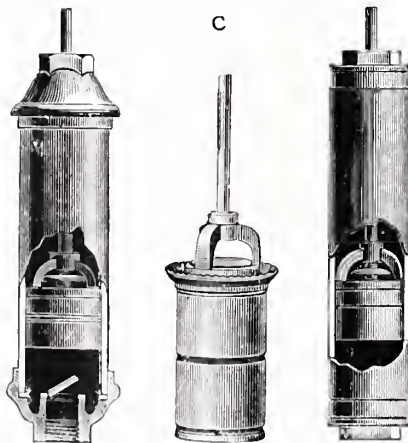


Fig. 1790. Fig. 1791. Fig. 1792.

No.	Size, Inches.	Pipe, Inches.	Iron.	Brass Body Iron Plunger and Att's.	Brass Body Iron Plunger and Iron Att's.	All Brass.
000	1½ x 16	1	We do not make these sizes except in Fig. 1792, all brass.			12.50
00	1¾ x 16	1¼				12.50
0	2 x 16	1½				13.50
1	2¼ x 16	1¾	\$6.50	12.00	13.50	15.00
2	2½ x 16	1¾	7.00	12.50	14.00	15.00
3	2¾ x 16	1½	7.50	13.00	14.50	16.25
4	3 x 16	1¾	8.00	14.00	15.50	17.50
5	3¼ x 16	1½	8.50	16.00	18.00	20.00
6	3½ x 16	1½	9.00	18.50	21.00	23.40
7	3¾ x 16	1½	9.50	22.50	25.00	27.50
8	4 x 16	1½	10.50	26.00	29.00	32.50
10	4½ x 16	2	14.00	30.00	35.00	40.00
12	5 x 16	2½	17.00	33.00	39.00	45.00
12	5 x 18	2½	20.00	37.00	43.00	50.00
16	6 x 16	3	23.00	42.00	50.00	60.00

Order by this Catalogue Figure Number, stating size wanted.



# IMPROVED PUMP CYLINDERS AND WORKING BARRELS—CONTINUED.

## ARTESIAN DEEP WELL PUMP CYLINDER.

"C" PLUNGER—Fig. 1793.

No.	Size, inches.	Pipe, inches.	Iron.	Brass Body and Plunger, Iron Attachments.	All Brass.
00	1 $\frac{3}{4}$ x 20	1 or 1 $\frac{1}{4}$	\$7.50	\$13.75	\$15.00
0	2 x 20	1 $\frac{1}{4}$	7.50	14.50	16.00
1	2 $\frac{1}{4}$ x 20	1 $\frac{1}{4}$	8.00	15.50	17.00
2	2 $\frac{1}{2}$ x 20	1 $\frac{1}{4}$	8.50	16.50	18.00
3	2 $\frac{3}{4}$ x 20	1 $\frac{1}{4}$	9.00	18.25	20.00
4	3 x 20	1 $\frac{1}{4}$	9.50	20.50	22.50
5	3 $\frac{1}{4}$ x 20	1 $\frac{1}{4}$ or 1 $\frac{1}{2}$	10.00	23.00	25.00
8	4 x 20	1 $\frac{1}{2}$ " 2	12.50	36.00	40.00

Add from  $\frac{1}{2}$  to  $\frac{9}{16}$ -inch to get outside diameter.

## WINDMILL AND DEEP WELL PUMP CYLINDER.

"E" PLUNGER—Fig. 1795.

No.	Size, inches.	Pipe, inches.	Brass Body, Iron Attachments and Plunger.	Brass Body and Plunger, Iron Attachments.	All Brass.
4	3 x 12	1 $\frac{1}{4}$	\$12.00	14.50	16.50
6	3 $\frac{1}{2}$ x 12	1 $\frac{1}{4}$	13.75	17.50	20.00
8	4 x 12	1 $\frac{1}{2}$	15.00	24.00	29.00
12	5 x 14	2 $\frac{1}{2}$	25.25	35.00	40.00
16	6 x 14	2 $\frac{1}{2}$	30.00	44.50	52.00
20	8 x 14	3	50.00	65.00	72.00

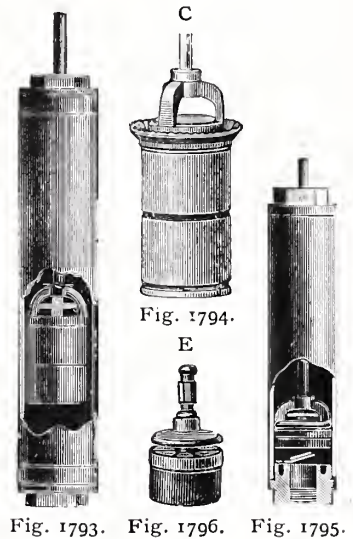


Fig. 1793. Fig. 1796. Fig. 1795.

## IRON PUMP CYLINDERS, LINED WITH SEAMLESS BRASS TUBES—Fig. 1797.

"B" PLUNGER FOR SHALLOW WELLS.					"C" PLUNGER FOR DEEP WELLS.				
No.	Size, inches.	Pipe, in.	Brass Cage and Valve.	All Brass Plunger.	No.	Size, inches.	Pipe, in.	Brass Cage and Valve.	All Brass Plunger.
1	2 $\frac{1}{4}$ x 12	1	\$8.00	\$9.00	1	2 $\frac{1}{4}$ x 16	1 $\frac{1}{4}$	\$9.50	\$10.75
2	2 $\frac{1}{2}$ x 12	1 $\frac{1}{4}$	8.50	9.50	2	2 $\frac{1}{2}$ x 16	1 $\frac{1}{4}$	10.00	11.50
3	2 $\frac{3}{4}$ x 12	1 $\frac{1}{4}$	9.00	10.00	3	2 $\frac{3}{4}$ x 16	1 $\frac{1}{4}$	10.50	12.00
4	3 x 12	1 $\frac{1}{4}$	9.50	10.50	4	3 x 16	1 $\frac{1}{4}$	11.00	12.75
5	3 $\frac{1}{4}$ x 12	1 $\frac{1}{4}$	10.00	11.25	5	3 $\frac{1}{4}$ x 16	1 $\frac{1}{2}$	11.50	13.75
6	3 $\frac{1}{2}$ x 12	1 $\frac{1}{2}$	10.50	12.00	6	3 $\frac{1}{2}$ x 16	1 $\frac{1}{2}$	12.00	14.50
7	3 $\frac{3}{4}$ x 12	1 $\frac{1}{2}$	11.50	13.50	7	3 $\frac{3}{4}$ x 16	1 $\frac{1}{2}$	13.50	16.50
8	4 x 12	1 $\frac{1}{2}$	12.50	15.00	8	4 x 16	1 $\frac{1}{2}$	15.75	19.00

Be particular in ordering to state "Iron Cylinder."

## SEAMLESS BRASS TUBE WINDMILL PUMP CYLINDERS.

"F" PLUNGER. 10 $\frac{1}{2}$  Inches Long—Fig. 1799.

No.	Size, inches.	Pipe, inches.	Brass Body and Plunger, Iron Attachments.	All Brass.
1	2 $\frac{1}{4}$ x 10 $\frac{1}{2}$	1	\$7.75	\$8.50
2	2 $\frac{1}{2}$ x 10 $\frac{1}{2}$	1 $\frac{1}{4}$	8.00	8.75
3	2 $\frac{3}{4}$ x 10 $\frac{1}{2}$	1 $\frac{1}{4}$	8.50	9.25
4	3 x 10 $\frac{1}{2}$	1 $\frac{1}{4}$	9.00	10.00
5	3 $\frac{1}{4}$ x 10 $\frac{1}{2}$	1 $\frac{1}{4}$	9.75	10.75
6	3 $\frac{1}{2}$ x 10 $\frac{1}{2}$	1 $\frac{1}{2}$	10.50	12.00
7	3 $\frac{3}{4}$ x 10 $\frac{1}{2}$	1 $\frac{1}{2}$	11.75	13.25
8	4 x 10 $\frac{1}{2}$	2	14.00	16.00

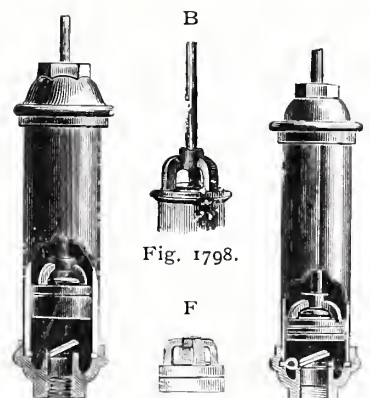


Fig. 1797. Fig. 1800. Fig. 1799.

Can furnish Fig. 1799 with inside caps if desired, 12, 14 and 16 inches long.

Order by this Catalogue Figure Number, stating size wanted.



# IMPROVED PUMP CYLINDERS AND WORKING BARRELS—CONTINUED.

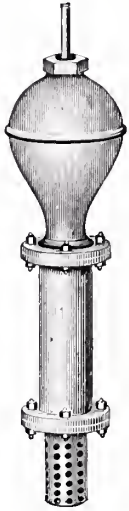


Fig. 1801.

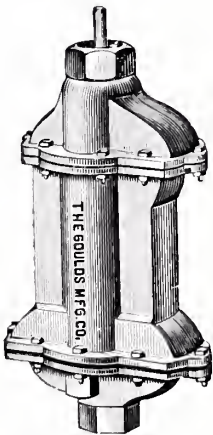


Fig. 1803.

H



Fig. 1805.

## DEEP WELL PUMP CYLINDER WITH AIR CHAMBER. "A" PLUNGER.

Fig.	No.	Size.	Fitted For.	Iron.
1801	4	3 x 12-inch.	1½-inch.	\$9.00
1801	8	4 x 12 "	1½ "	11.50

## DEEP WELL PUMP CYLINDER WITH AIR CHAMBER. "C" PLUNGER.

Fig.	No.	Size.	Pipe.	Iron.
1802	3	2½ x 16-inch.	1½-inch.	\$11.00
1802	4	3 x 16 "	1½ "	11.50
1802	5	3½ x 16 "	1½ "	12.00
1802	6	3¾ x 16 "	1½ "	12.50
1802	7	3¾ x 16 "	1½ "	13.00
1802	8	4 x 16 "	1½ "	14.00

## DOUBLE-ACTING PUMP CYLINDER. "H" PISTON.

Fig.	No.	Size.	Stroke.	Fitted For.	Iron.
1803	1	2¼ x 10½-inch.	6-inch.	1½-inch.	10 00
1803	4	3 x 10½ "	6 "	1½ "	12 00
1803	8	4 x 10½ "	6 "	2 "	14 00
1803	8	4 x 14 "	10 "	2 "	20.00

These Cylinders are desirable in shallow wells when large amount of water is desired.

## WOOD PUMP CYLINDER. "G" PLUNGER.

Fig.	No.	Size.	Fitted For.	Iron.
1804	4	3 x 11½ in.	1½ inch.	\$3.00
1804	5	3¼ x 11½ "	1½ "	4.00
1804	7	3¾ x 11½ "	1½ "	4.50

These Wood Pump Cylinders are used in connection with our Wood Pumps on driven wells.

Order by this Catalogue Figure Numbr, stating size wanted.



Fig. 1802.



Fig. 1804.

G



Fig. 1806.

# PUMP CYLINDERS OR WORKING BARRELS.

Everyone knows that the Cylinder is the Pump by means of which water is moved. If the Cylinder is defective, the Standard is of no use, no matter how attractive may be its appearance. Greatest care should be taken that all joints and connections are made tight.

Our Cast Iron and Cast Brass Cylinders are accurately bored, reamed and polished.

Brass Tube Cylinders are made of seamless drawn brass tubing with iron or brass attachments.

Brass-Lined Cylinders are Iron Cylinders lined with seamless drawn brass tubing.

Our technical names of different parts comprising a Working Cylinder are :

Body or Shell,	Plunger Poppet Valve,	Bottom Attachment or Cap,
Plunger complete,	Plunger Leather Packing,	Lower Valve Leather,
Plunger Cage,	Plunger Rod in E, G and H,	Ring Packing for Top Attach-
Plunger Follower,	Top Attachment or Cap,	ment.

We can fit any of our Cylinders with metallic valves throughout for pumping hot or corrosive liquids, at extra cost.

The following are representations of our several types of Plungers and Pistons :

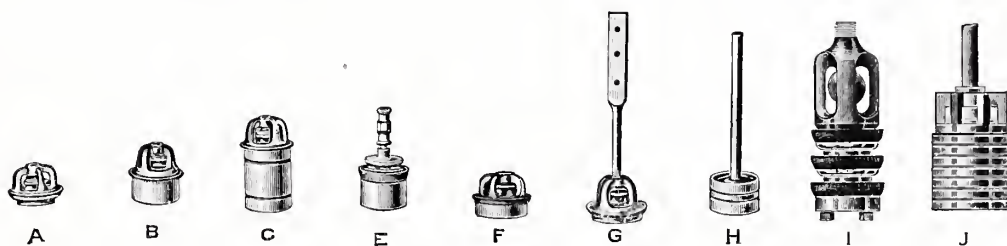


Fig. 1807. Fig. 1808. Fig. 1809. Fig. 1810. Fig. 1811. Fig. 1812. Fig. 1813. Fig. 1814. Fig. 1815.

"A" Gas Set Plunger has cage with short follower, poppet valve and leather packing.

"B" Shallow Well Plunger has cage with short turned and grooved follower, poppet valve and leather packing.

"C" Deep Well Plunger has cage with turned and grooved follower about five inches long, poppet valve and leather packing.

"E" Deep Well Plunger has rod running through it with follower and disc valve closing over faced valve seat.

"F" Shallow Well Plunger has all brass cage with short turned follower, poppet valve and leather packing.

"G" Shallow Well Plunger, same as "A" style, except that end of Rod is flattened for attaching wood rod.

"H" Piston has solid centre with double crimped leather packings on either side.

"I" Brass Artesian Plunger has special pattern brass cage with follower and crimped packings and brass ball valve.

"J" Deep Well Plunger has brass cage with long turned and grooved follower, poppet valve and leather packing.

Order by this Catalogue Figure Number, stating size wanted.

“NEW DELUGE” BILGE PUMPS.

BRASS-LINED WITH ADJUSTABLE LEVER. ALSO GEARED FOR POWER.

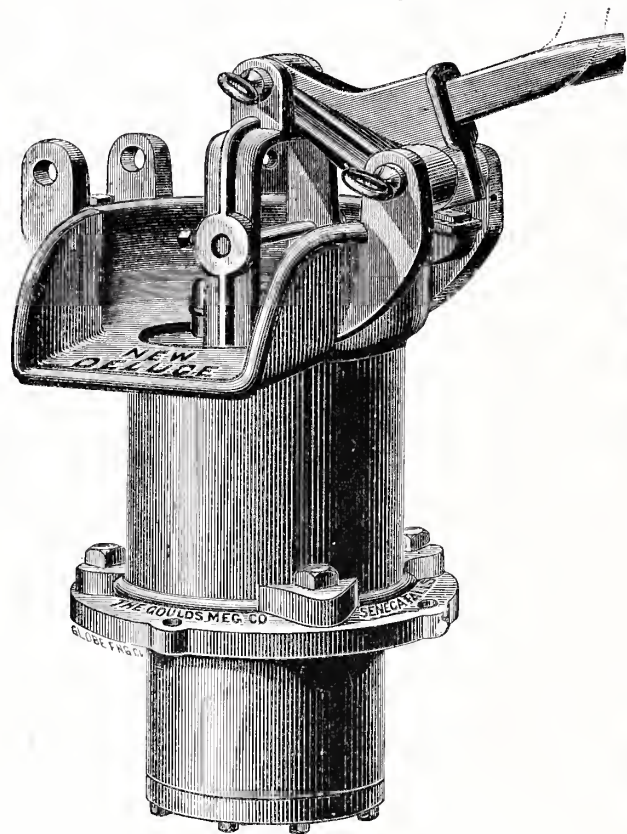


Fig. 1816.

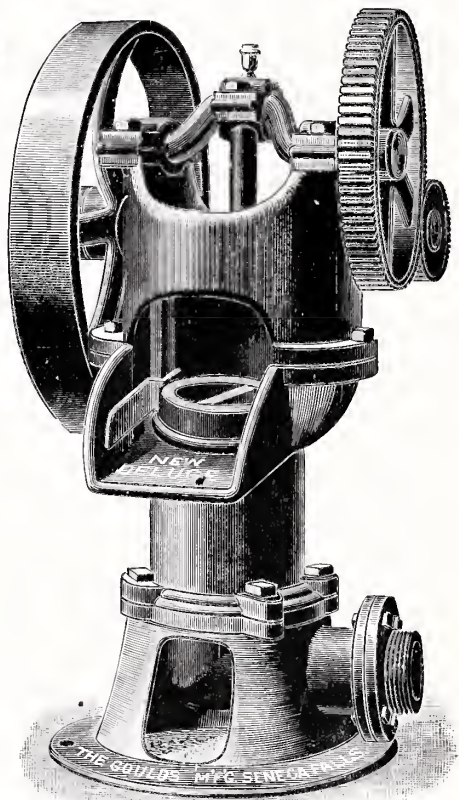


Fig. 1817.

Fig. 1816 represents our improved “New Deluge” Pump, which is designed for shallow or small vessels of not more than 15 to 20 feet depth of hold; for contractors who wish to pump large quantities of water from excavations, etc.; for irrigation or any other purpose where a compact and capacious pump is desired.

The cylinder is lined with brass, the valves rubber faced, and the lever socket made at such an angle that the bent wrought iron lever when put in one side up is right for ordinary pumping, and, by simply changing it to the other side up, it becomes a vertical lever. This lever may also be worked from three different points, as shown by lugs in our cut. The pump has large valves accessible and removable by hand from above, while to the bottom of the base is bolted a flange which may be screwed for any size pipe ordered, or changed for other sizes if desired. Can furnish Fig. 1816, adapted for Hose, similar to Fig. 1817. For prices see List below.

Fig. 1817 represents our “New Deluge” Pump described above, fitted with side suction for hose, surmounted with a strongly-bolted, heavy frame, supporting bearing boxes, with crank shaft, spur and pinion gears, pulley etc., the whole making a most compact and serviceable device, capable of raising and discharging from 3,000 to 4,000 gallons of water per hour.

The cylinder is brass-lined, the valves rubber faced and accessible by hand, although they will pass water containing gravel, sand, sticks, etc., without clogging. The spur and pinion gears are in proportion of 4 to 1, and balance wheel can be changed as desired to give 40 to 50 strokes to plunger per minute. Can furnish Fig. 1817 with iron pipe suction below base similar to Fig. 1816.

Diameter Cylinder.	Suction.	STROKE.		CAPACITY.		PRICE.	
		Fig. 1816.	Fig. 1817.	Fig. 1816.	Fig. 1817.	Fig. 1816.	Fig. 1817.
6 -inch.	2½-inch.	4-inch.	6-inch.	½-gal.	¾-gal.	\$20.00	58.00
8½ “	3 “	6 “	6 “	1½ “	1½ “	30.00	68.00

Fig. 1816 fitted with side suction, add \$1.00 to 6-inch., \$1.00 to 8½-inch, List. Fig. 1817 fitted with bottom suction, deduct \$1.00 from List. For Hose, Pipe, and Fittings, see their respective Lists.

Order by this Catalogue Figure Number, stating size wanted.



# ODORLESS DIAPHRAGM FORCE PUMP.

WITH REVERSIBLE DOUBLE WROUGHT IRON LEVERS.

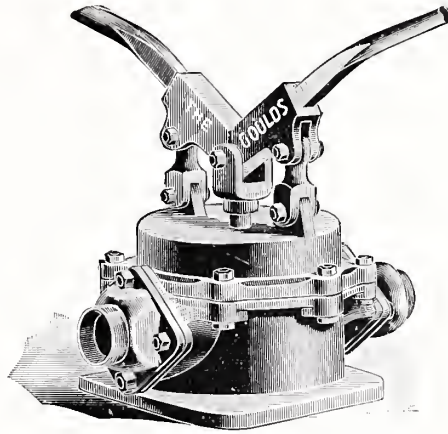


Fig. 1818.

Fig. 1818 represents our perfected Odorless Diaphragm Force Pump especially designed for pumping out sewers, cesspools, vaults, etc. This Pump must not be confused with the common, open top diaphragm pumps, for it has none of the objectionable features of that class.

The construction comprises substantial body, surmounted by bearer top with rubber diaphragm (in effect plunger) securely bolted between. The working rod is so attached to diaphragm that it is not exposed to matter pumped, dispensing with all stuffing boxes, obviating dangers of leakage, either liquid or gas, and rendering operation entirely odorless.

The suction and discharge chambers, comprising valve seats and covers, are composition bronze and incase the inclined rubber valves which offer smallest obstruction to passage of any matter.

Unless otherwise ordered, we fit for size wrought iron pipe given below, but can cut to any special hose guage. Couplings for hose, extra.

Sue, and Dis.	Stroke.	Capacity per Stroke.	Height.	Approx. Weight.	Price.
3-inch.	2½-inch.	¾ to 1 gallon.	18-inch.	195 lbs.	\$40.00

Order by this Catalogue Figure Number, stating size wanted.



# LOUDS DIAPHRAGM PUMP.

## SIDE AND BOTTOM SUCTION.

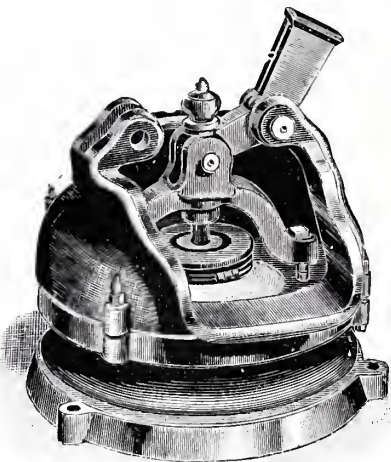


Fig. 1819.

Fig. 1819 shows Louds Diaphragm Pump, and is similar in most respects to Fig. 1821. The remarks on page 617 refer equally well to this pump, which is especially designed for mines, quarries, barges and vessels. It is also used in factories, on railroads and farms, and by builders of sewers, foundations, etc.

We can furnish these pumps with side suction at same List price.

Fig. 1819.	No. 1, 9-inch Diaphragm for 2½-inch Iron	
	Pipe, capacity per Stroke, ¾-gallon, each.	\$24.00
"	1819. No. 2, 12½-inch Diaphragm for 3-inch Iron	
	Pipe, capacity per Stroke, 1½ gals., each.	26.00
	Extra Diaphragms . . . . .	2 25

# THE ODORLESS DIAPHRAGM FORCE PUMP.

## FOR EMPTYING VAULTS, CESSPOOLS, ETC.

The cut representing Fig. 1820 is a correct likeness of an Odorless Pump, the advantages of which are much appreciated by those who use them, and which can be used to good satisfaction where an ordinary vault pump would be decidedly objectionable. It has the same angular inlet valve, and small liability to clog, as the Side Inlet Pump, Fig. 1819. It is successfully used to clean out cesspools, not only those having ordinary sediment, but also such as receive the flow from water-closets. The pump has a convenient hand-hole, not shown in the cut, for getting at the valves without removing the air chamber. We have the same sized force pump with bottom inlet, fitted for 3-inch iron pipe.



Fig. 1820.

Fig. 1820.	No. 3, 3-inch Suction . . . . .	\$48.00
	Extra Diaphragms . . . . . Each.	2.50

Order by this Catalogue Figure Number, stating size wanted

# EDSON DIAPHRAGM PUMPS.

## SIDE AND BOTTOM SUCTION.

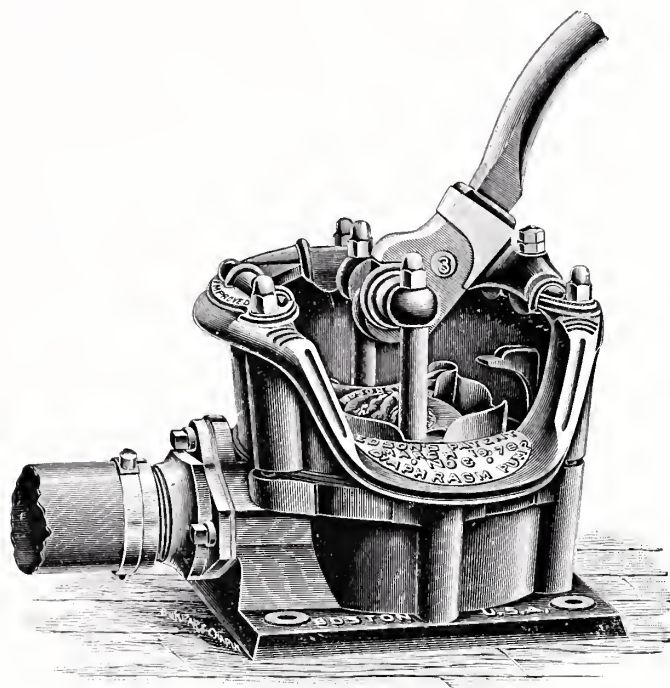


Fig. 1821.

The cut, Fig. 1821, shows Edson's Pump with side inlet, with its improved angular valve, not liable to clog, and enables this Pump to be used with suction hose and a suitable strainer, and to work well when there is a considerable mixture of sand, grain, or other clogging substances in the water, and especially adapts it to pump out cesspools, sewers, and other places where an ordinary pump could not successfully be used.

Three-inch suction hose coupled always on hand, so as to fill orders promptly.

Fig. 1821. No. 3. 3-in. suc., \$26.00  
Extra Diaphragm . . . . . 2.50

Fig. 1822 represents Edson's Pump with bottom suction, generally of iron pipe, and is more commonly used on ships and other places where it can be bolted and remain stationary. Like Fig. 1821, these Pumps are well made, strong and durable.

Fig. 1822.	No. 2.	2½-in. suction .	\$18.00
" 1822.	" 3.	3 " "	22.00
" 1822.	" 4.	4½ " "	33.00
Brass Strainers for suction pipe .			4.00

For price of Suction Pipe or Hose, see their respective Lists.

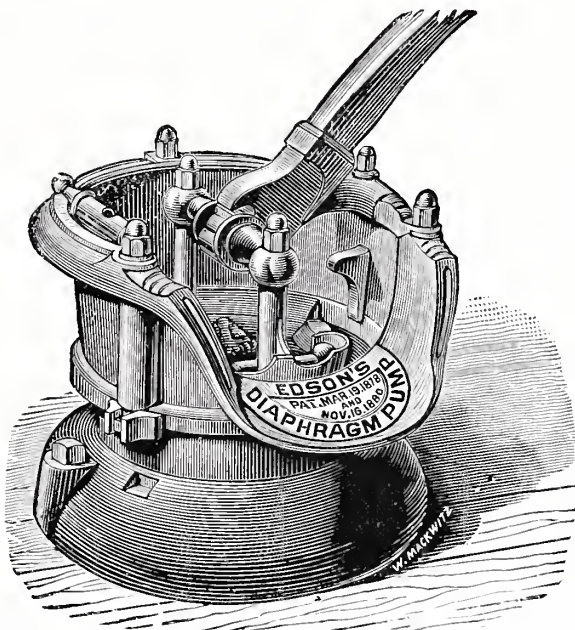


Fig. 1822.

Order by this Catalogue Figure Number, stating size wanted.

## GOULDS HYDRAULIC RAMS.

---

THE HYDRAULIC RAM is for furnishing water for house, fountain, barns, etc. The water is taken from the supply through the Drive Pipe—the length and fall of same to be determined by results required—and forced upwards through the Discharge Pipe to the point of delivery. The conditions and requirements under which Rams are operated are so varied, that we have thought best to treat these under separate heads, believing our customers will appreciate this arrangement, which will enable each purchaser to make his own selection from our goods, or furnish such data that we can readily make recommendations and estimates.

HEAD OF FALL OF DRIVE PIPE—Rams will work, and successfully, where the spring or brook is only 18 inches higher than the Ram; yet, as the height or head increases, the more powerful the Ram operates, and its ability to force water to a greater elevation and distance correspondingly strengthens.

Thus, as shown in our Table of Tests, we have a varying head of 10 to 25 feet, proportioned to height water is to be raised and quantity required. As a specific example, we might say a fall of 10 feet from the brook or spring to the Ram is sufficient to raise water to any point, say 150 feet above the machine, while the same amount of fall would also raise water to a point considerably higher, though the quantity of water discharged will be proportionately diminished as the height and distance increase.

Again, when the requisite quantity of water is forthcoming from the Ram, operating under a certain fall, it is not judicious to increase this, for by so doing the strain on the machine is augmented, those parts doing the labor are overtaxed, and the durability of the Ram lessened.

LENGTH OF DRIVE PIPE—Practical experience and experiments have proven that the best results are obtained where there is ample, though not excessive, length as well as fall to the Drive Pipe, for the weight of this volume of water is an important auxiliary in forcing water into the air chamber and through the Delivery Pipe.

We recommend drive pipes to be 50 to 75 feet in length, though in very heavy lifts this may be advantageously increased to 125 and even 200 feet. In cases where this is not practicable the pipe may be bent in a coil five or six feet in diameter.

WATER FURNISHED RAM—The quantity of water furnished a Ram, or amount requisite to operate it, is determined by the size and fall of head of Drive Pipe, and would refer to our tables giving the contents in gallons or fractions of gallons in pipes, and also to our Table of Tests showing the relative quantities of water forced through Drive Pipes under different heads. Where the supply of water is limited there is no simpler or better plan of determining this quantity than to measure in pails or barrels the number of gallons which can be led in pipes from the spring or brook per minute or in any given length of time.

WATER RAISED AND WASTED—The relative height of the spring or supply above the Ram, and the elevation to which it is required to raise, determine the relative proportion between the water raised and wasted—the quantity raised varying according to the height it is conveyed with a given fall; also, the distance the water has to be conducted, and consequent length of pipes, have some influence on the quantity delivered at the point of discharge, as the more extended the pipes through which the water has to be forced by the Ram, the more friction there is to be overcome.



## GOULDS HYDRAULIC RAMS — CONTINUED.

For ordinary purposes it is sufficient to say that in conveying water, say 50 or 60 rods, it may be safely calculated that one-seventh of the water can be raised and discharged at an elevation five times as high as the fall, or one-fourteenth part can be raised and discharged, say ten times as high as the fall or height of Drive Pipe.

Thus, with a fall of five feet for every seven gallons drawn from the fountain, one may be raised twenty-five feet, or half a gallon fifty feet, or with ten feet fall, one gallon of every fourteen may be raised to the height of 100 feet, and so in proportion as the fall or height is varied.

**DIRECTIONS FOR PLACING RAMS AND PIPES**—Rams should always be secured to heavy timbers or masonry, and not be dependent merely upon pipe connections. This is important, as there is a constant concussion and strain upon the Ram, and it should have such a foundation as we recommend.

The Ram and pipe should also be carefully protected against frost, and turns in either Drive or Discharge Pipe should be avoided, if possible. When it is impossible to set the Ram without having elbows in the pipes, make the elbows as large as may be, so as to place as little obstruction to the free and easy flow of water as is practicable.

**SELECTION OF RAMS**—With a given supply of water under a great fall the Ram is not required to be of as large size as for the same quantity of water under a less fall.

Fig. 1823 represents our single Hydraulic Rams, which can be fitted for wrought iron or lead pipe, as desired. Figs. 1824 and 1825 are for very heavy lifts, as described below, as is also our plan for combining a battery of rams playing into a single discharge pipe.

**ESTIMATES**—We are always glad to be consulted on any matters pertaining to Hydraulic Apparatus, and will cheerfully make recommendations and prepare estimates, etc., on any plants. To do this, however, we should be definitely advised on the following points: Quantity of water which can be supplied to the Ram; quantity of water desired to elevate in any given time; fall of head and distance from spring or brook to desired location of Ram; height to which the water is to be raised.

**BATTERIES OF RAMS**—We have frequent inquiries for Rams of greater capacity than we build, and to meet this demand offer a combination or battery of any number of rams playing into a single discharge pipe, which possesses some advantages over the largest rams which it might be practical or profitable to make. In this connection we might say we build the largest Rams of any manufacturer, for the true criterion of capacity is not the nominal number given same but the size of the drive pipe.

Recent practice and tests with our Rams have demonstrated the feasibility of employing Rams under circumstances hitherto considered impractical, as, in fact, they are with other Rams than certain types of our own which are especially built for heavy service. Reference to our engravings, Figs. 1824 and 1825, will show in a measure how these Rams have been strengthened in all parts, while we have still further increased their efficiency by substituting a new and improved style of brass poppet or spring valve in place of the ordinary leather one in the air chamber, thus rendering them metallic fitted throughout. Figs. 1824 and 1825 are identical in their construction, the Double Ram simply showing a combination of two Rams, while this number can be increased at will.

At the same time, as above stated, these combinations offer certain advantages over Single Rams, for, as each Ram receives its water through a separate drive pipe, the strain is not so great on pipe or Rams as if but one Ram were used; and then, too, in the event of accidents at any time the supply is not suspended, for each of the Rams acts independent of the others.



GOULDS HYDRAULIC RAMS.

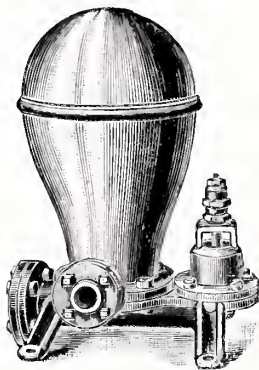


Fig. 1823.

	Size. No.	Supply per Min. to Operate Ram.	Length of Drive Pipe. Ft.	CALIBRE OF PIPES.		Approximate Weight.	*Price. Leather Valve.
				Drive.	Discharge.		
Fig. 1823 .	†2	1 to 2 gals.	50 to 75	¾-inch.	½-inch.	28 lbs.	\$9.00
“ 1823 .	†3	2 “ 4 “	50 “ 75	1 “	½ “	35 “	11.00
“ 1823 .	†4	3 “ 7 “	50 “ 75	1¼ “	¾ “	45 “	14.00
“ 1823 .	†5	6 “ 10 “	50 “ 75	2 “	1 “	50 “	22.00

\* Leather Valve under Air Chamber. † Fitted for Iron or Lead Pipe. ‡ Fitted for Wrought iron Pipe.

SINGLE RAM.

DOUBLE RAM.

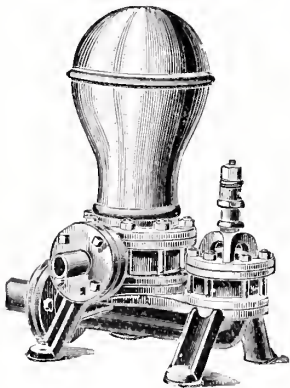


Fig. 1824.

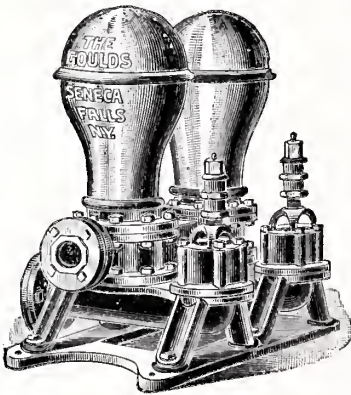


Fig. 1825.

	Size. No.	Supply per Min. to Operate Ram.	Length of Drive Pipe. Ft.	CALIBRE OF PIPES.		Approximate Weight.	Price. *Brass Spring Valve.
				Drive.	Discharge.		
Fig. 1824 .	6	11 to 25 gals.	50 to 200	2½-inch.	1½-inch.	152 lbs.	\$50.00
“ 1824 .	7	20 “ 40 “	50 “ 200	3 “	1½ “	257 “	85.00
“ 1824 .	z	25 “ 75 “	50 “ 200	4 “	2 “	412 “	130.00
“ 1825 .	6	11 “ 25 “	50 “ 200	2½ “	1½ “	350 “	100.00
“ 1825 .	7	20 “ 40 “	50 “ 200	3 “	2 “	560 “	170.00
“ 1825 .	z	25 “ 75 “	50 “ 200	4 “	2½ “	900 “	260.00

\*Brass Spring Valve under Air Chamber.

The size of the pipes should vary in proportion to the distance the water is to be conveyed, as the greater the distance the larger the pipe in proportion to the size of the machine. This applies to the discharge pipe only. By means of an adjuster applied to each of our Rams, the quantity of water drawn from the fountain may be varied at pleasure—thus readily adapting the machine to a variable supply. Send for special circulars with tables of actual Test made with Goulds Hydraulic Rams. Order by this Catalogue Figure Number, stating size wanted.

# RIFES HYDRAULIC ENGINES.

## CAPACITIES.

**No. 10 ENGINE**—The number of gallons the stream or spring flows per minute usually determines the proper size to be employed. The No. 10 Engine is fitted for either  $\frac{3}{4}$  or 1-inch drive pipe and  $\frac{1}{2}$ -inch discharge pipe, and when working at full capacity will use four to five gallons per minute, but by means of the patent lever with adjustable weight it can be easily regulated, reducing the capacity to suit the flow down to two and a half or three gallons per minute.

We recommend this size only to parties having but small springs, with five or more feet fall that may be utilized in supplying water where a small quantity is needed.

Should the spring or stream flow five to ten gallons per minute, then we recommend No. 15.

**No. 15 ENGINE**—When working at full capacity with  $1\frac{1}{4}$ -inch drive pipe will use eight to ten gallons per minute; with  $1\frac{1}{2}$ -inch drive pipe will use ten to twelve gallons per minute. However, in either case it can be easily regulated to reduce the amount of water used to suit the flow from the spring or stream, even down to five gallons per minute.

This, as well as the smaller size, requires good fall, say five or more feet, which often can be obtained within thirty to sixty yards below the spring.

Where the spring or stream flows ten or fifteen gallons per minute, No. 20 is recommended.

**No. 20 ENGINE**—This number is fitted for 2-inch drive pipe and 1-inch discharge pipe. However,  $\frac{3}{4}$ -inch discharge pipe may be used under certain favorable conditions, explained on another page.

The full capacity of this machine, working under location of average fall, say four to seven feet, is fourteen to sixteen gallons per minute, and like all other sizes can be easily regulated to use as low as seven gallons per minute, and may be successfully operated under two to twenty feet fall, as may be required.

In cases where the spring or stream flows fifteen to twenty-two gallons per minute, we then recommend No. 25.

**No. 25 ENGINE**—This Engine (or Ram) is fitted for  $2\frac{1}{2}$ -inch drive pipe and 1-inch discharge pipe. When working at full capacity under average location, say five to seven feet fall, will use twenty-two to twenty-four gallons per minute, and like those formerly represented can be easily regulated to reduce the capacity as low as eleven gallons per minute.

We can also furnish this size double-acting, using creek or impure water as a power for forcing the pure spring water to any desired place.

When the stream or spring flows twenty-two to thirty gallons per minute, No. 30 is recommended.

**No. 30 ENGINE**—Is fitted for 3-inch drive pipe and  $1\frac{1}{4}$ -inch discharge pipe. However, 1-inch discharge pipe may be used when circumstances favor it.

This Ram, when working at full capacity, under an average fall of four to seven feet, will use thirty to thirty-five gallons per minute, but can easily be regulated to suit the flow from spring or stream to fifteen gallons per minute if necessary.

There are many of this kind at work under various conditions, the fall on the Ram being from fifteen inches to fifteen feet, and forcing water from fifteen to one hundred and fifty feet high, and and in some places over one mile of distance.

**No. 35 ENGINE**—Is fitted for  $3\frac{1}{2}$ -inch drive pipe and  $1\frac{1}{2}$ -inch discharge pipe, and its full capacity under five to seven feet fall, is forty-five to fifty gallons per minute. It can be easily regulated to use any less quantity, down to twenty gallons per minute.

When parties have good locations it is usually employed where more than ordinary supply water is needed.

It is also adapted to certain locations where small sizes would be impracticable. A great many springs or streams afford plenty of water where but little fall can be obtained. In such cases, where the lift is not too great, a larger volume of water can be used to secure the necessary power which can not be obtained by the fall.

This Engine can be operated under as little as twelve to fifteen inches fall, which will raise water twelve to fifteen feet. It can also be successfully used under twenty or more feet, and will raise water to a proportionate height.

We can furnish Engines of greater capacity than mentioned above. See List on page 622.

RIFES HYDRAULIC ENGINE OR RAM.

RIFES HYDRAULIC ENGINE No. 35.

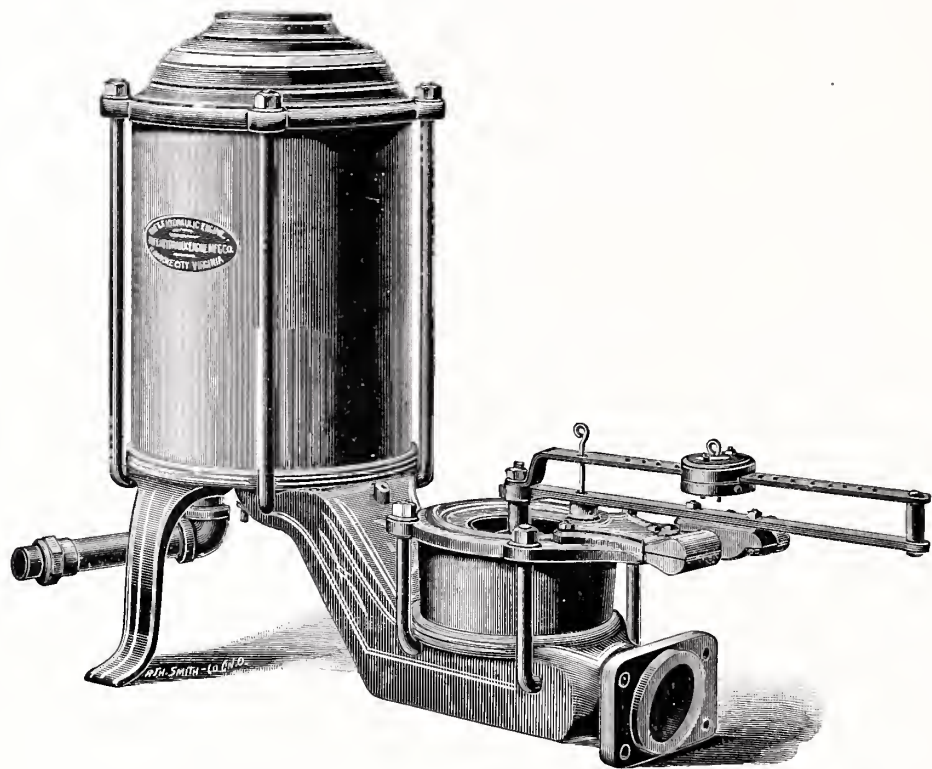


Fig. 1826.

These Engines will work effectively under a head as low as 2 feet, and for every foot of fall will elevate 20 feet. By means of an adjusting lever the capacity of any of the various sizes can be reduced 50 per cent. or more, as may be desired, to provide for a variation in water supply, without disadvantage or loss in efficiency.

The fall from the spring, stream, or other source of supply to the engine determines the height to which the water can be elevated as well as the relative proportion between the water raised and wasted, the quantity raised varying according to the height it is carried and the distance conveyed. For ordinary purposes it is sufficient to say that with a discharge pipe 1,000 feet in length, one-sixth of the water can be raised and discharged at an elevation five times the height of fall or one-twelfth ten times the height of fall.

With a given supply of water under a high head, the engine is not required to be as large as for the same duty under a lower head.

Sizes of drive and discharge pipe may be varied somewhat from the standard given in tables, depending upon length. To provide for cases where the supply of pure spring water is limited, the larger size Engines are made double-acting, by which means a stream of impure water may be used to force pure water through the discharge pipe without mixing or contamination—an important feature not embraced in any other similar machine.

No.	Drive Pipe.	Discharge Pipe.	Gals. per Min. required under 5 to 7 Ft. Fall.	May be Reg-ulated to use per Min.	Least feet of Fall Recom-mended.	Weight. Pounds.	Single-Acting.	Double-Acting.
10	1	$\frac{3}{4}$	4 to 5	$2\frac{1}{2}$ to 3	5	125	\$50.00	65.00
15	$1\frac{1}{2}$	1	6 " 10	5	3	150	55.00	70.00
20	2	1	8 " 16	7	2	200	60.00	75.00
25	$2\frac{1}{2}$	1	12 " 24	11	2	225	66.00	81.00
30	3	$1\frac{1}{4}$	18 " 35	15	$1\frac{1}{2}$	250	75.00	90.00
35	$3\frac{1}{2}$	$1\frac{1}{2}$	25 " 50	20	$1\frac{1}{2}$	375	90.00	105.00
40	4	2	35 " 70	30	$1\frac{1}{2}$	550	120.00	140.00
80	8	4	150 " 350	100	2	2000	450.00	500.00

Order by this Catalogue Figure Number, stating size wanted.



## RIFES DOUBLE-ACTING RAM.

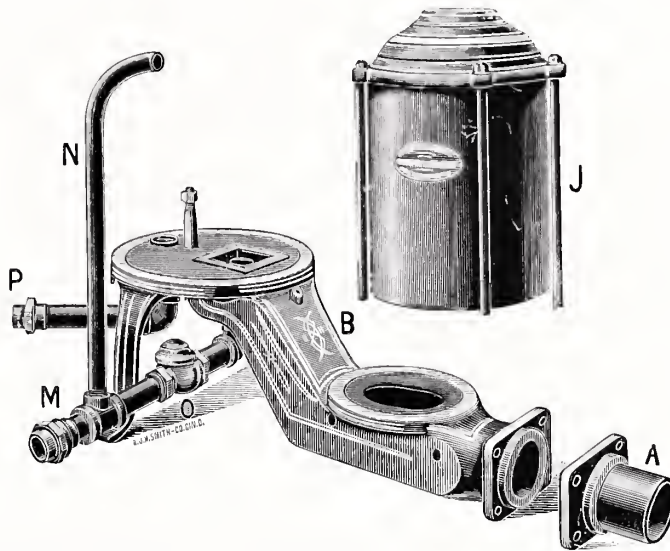


Fig. 1827.

Many excellent springs are too small to afford the power requisite for the operation of a hydraulic ram; others are sufficient in volume but are so situated that the necessary fall cannot be obtained, consequently an ordinary hydraulic cannot be used to elevate the water to points at which it is desired for use. Many such springs, however, have running near them, a branch or creek in which both sufficient water and fall can be obtained for operating the ram. For such locations our Double-Acting Ram is adapted, elevating the spring water in a pure and separate condition, by means of the power derived from the water of the creek.

A fall of 18 inches from the spring to the Ram is usually sufficient; if this exists the Ram can be located at almost any point consistent with the surroundings, in order to get the power of the creek or branch.

The manner of placing the Double-Acting Ram is exactly the same as that of the Single-Acting, with the exception that it must be so located as to insure the fall of 18 or more inches.

The cut gives an excellent idea of the construction of the Double-Acting Ram, and a careful examination will enable any one to understand its manner of operation. When the outside valve closes, the force of the running column of water is transferred against the inside valve, the elastic cushion of air in the chamber receiving this sudden blow is compressed and allows a small quantity to enter, but almost instantly recovers itself and suddenly closes the inside valve against the column of water. The column of water having expended its force is driven back under this sudden blow and recoils in the direction of the head, relieving all pressure from beneath the chamber and the working valve, with a tendency to form a vacuum there. It is at this instant that the working valve drops open and the water from the spring coming to the Ram through the spring supply pipe M impelled by the 18 or more inches head, forces itself through the check valve O into that portion of the water chamber between the outside or working valve and the air chamber. The recoil of the column of water is brief and as it commences flowing again down the drive pipe and out through the escape valve it closes the check valve O, which prevents the spring water passing back to the spring.

When the column of water running down the drive pipe and escaping through the working valve has acquired sufficient velocity, the working valve is again closed, and the force or blow again acts on the inside valve in the bottom of the chamber, opening it as before, and forcing in a quantity of spring water; the spring water, as will be readily understood, being in position beneath the chamber.

This operation is constantly repeated, and when the Ram is properly put down with a sufficient supply of spring water, there is no mixing of the water.

The flow of spring water being checked, the overflow pipe N is provided, through which it finds relief during the exceedingly short time the working valve is closed at each blow, and little or no recoil having been produced in the column of spring water, it is ready instantly to enter the chamber or base through the check when the recoil again occurs in the drive pipe.

This Double-Acting device is the only practical and satisfactory one known.

The term "Double-Acting" is not intended to indicate that any more power is produced by this machine than by the Single-Acting, but simply that two kinds of water are used, and the same rule is used by which to calculate results.

For price, capacity, etc., see List on page 622.



# PNEUMATIC PUMPS.

No. 1.



Fig. 1828.

No. 2.



Fig. 1829.

No. 3.



Fig. 1830.

Figs. 1828, 1829 and 1830 show our regular Pumps. The No. 1A size shown by Fig. 1829 is adapted for light power and windmill work, and will elevate liquids up to one hundred feet and give very economical results.

For elevations exceeding one hundred feet, and for heavy duty, the form shown by Fig. 1830 is recommended, and Fig. 1828 is the form adapted for bored and artesian wells.

We can build these pumps of any size or capacity for almost any service. They are carefully constructed of the best material by thorough mechanics; each part is made to gauge, insuring accuracy and perfect interchangeability; and each machine is carefully inspected and tested before being shipped.

We aim to carry in stock the following sizes:

Size No.	Style.	Maximum Capacity per Minute.	Diameter of Space Required.	*Price.
1A	Dug Well.	20 Gallons.	20-inch.	
2A	" "	50 "	24 "	
3A	" "	75 "	30 "	
4A	" "	100 "	36 "	
1B	Bored Well.	15 "	4 "	
2B	" "	25 "	5 "	
3B	" "	40 "	5 "	

\*Prices on application.

Order by this Catalogue Figure Number, stating size wanted.

# PNEUMATIC PUMPING SYSTEM.

PNEUMATIC SYSTEM, OPERATED BY A WINDMILL.

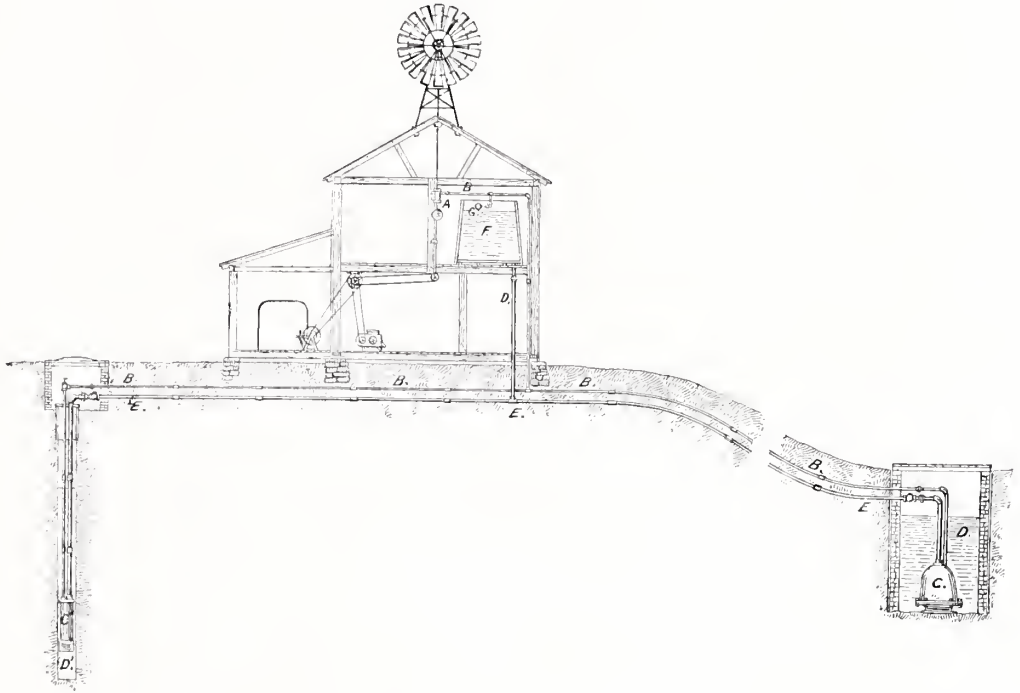


Fig. 1831.

The illustration above shows in a general way, how, by using our Pneumatic Pumps, a geared windmill can be easily and cheaply erected on a barn, and be utilized for driving light machinery, and for pumping water from one or more sources without respect to form or location.

The vertical shaft from the mill actuates a small air compressor A, which generates and forces compressed air through pipe B, in any direction or to any distance to the Pneumatic Pumps C or C', submerged in the dug well D or the bored well D'.

From thence the water is forced by the direct pressure of air, without the intervention of pistons or complicated parts, through the pipe E into the tank F, or into any desired place of delivery.

The air compressor A is located conveniently, so it can be oiled occasionally, and this is the only attention it requires.

A float valve G is shown connected with air pipe B, near the top of tank F.

This allows the air to escape when the tank is full, thereby stopping the discharge of water, and making an overflow pipe unnecessary. Unlike the common water pump, the air compressor does not come in contact with any grit or sand, and its piston meets with only an elastic resistance, instead of a jar and shock, so common in ordinary pumps.

The resistance of compression to the piston of the air compressor increases as it advances; the greatest resistance is attained when the crank is on its last quarter, therefore the mill starts easily, and can run at a high rate of speed, which is a great advantage.

The submerged Pneumatic Pumps C or C' require no lubricating or other attention; they are entirely automatic, and are almost everlasting.

# “CRESCENT” HYDRANT AND STREET WASHER.

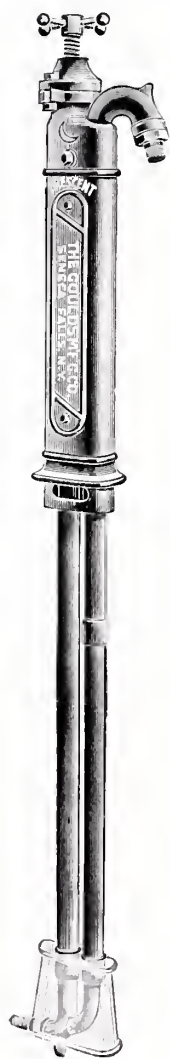


Fig. 1832.

The cuts show our new “Crescent” Hydrants and Street Washers with all necessary parts Brass, and two pipes—one dry, through which the valve can be withdrawn for repacking, the other forming a passage for the water to the spout.

They are perfectly anti-freezing. The valve closes against the pressure; the waste is ample and reliable, and no water whatever can enter the dry pipe.

In our Fig. 1832 Hydrant, it will be noticed there is a bolted top cap, permitting the ready removal and withdrawal of plunger valve without trouble; also a heavy, double-threaded brass screw, actuating valve below.

This Hydrant Stock is made in halves, bolted together, and the mouldings are nicely gilded, making the Hydrant of great utility and completeness, as well as an ornament to the lawn and sidewalk.

A spring cotter above the hand wheel prevents its slipping off from end of screw, as well as permits its removal if a water license requires it. A brass nipple, for attaching hose, screws into spout.

Fig. 1833 Street Washer has the same valves, etc., as are used with Hydrant, while either of them can be connected to lead or iron pipe, thus saving the carrying of a stock of each kind. No essential feature has been omitted or neglected, hence we can guarantee them to be superior in every respect to any similar goods offered for sale.

Our  $\frac{3}{4}$ -inch “Crescent” Hydrants and Washers are regularly fitted  $\frac{3}{4}$ -inch lead pipe inlet (the male screw on inlet opening of valve case, will take a  $\frac{3}{4}$ -inch gas-pipe coupling, when gas pipe is to be connected), and  $\frac{3}{4}$ -inch hose outlet.

The 1-inch Hydrants and Washers fitted in like manner: 1-inch inlet and  $\frac{3}{4}$ -inch outlet, though we can fit 1-inch outlet when so desired.

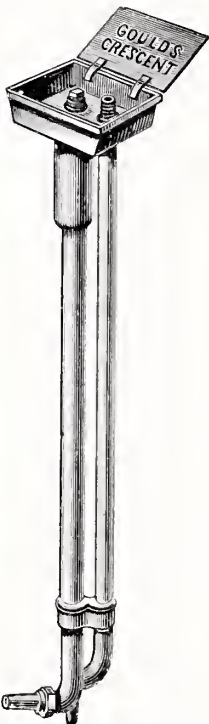


Fig. 1833.

LENGTH TO SET IN GROUND . . . . IN.		18	24	30	36	42	48	54	60	72
Fig. 1832.	For $\frac{3}{4}$ -in. Pipe. . . . .	\$9.80	10.10	10.35	10.60	10.80	11.00	11.25	11.50	12.10
“ 1832.	“ 1 “ “ . . . . .	11.65	11.95	12.25	12.55	12.85	13.15	13.45	13.75	14.35
“ 1833.	“ $\frac{3}{4}$ “ “ . . . . .	6.60	6.85	7.10	7.35	7.55	7.75	8.00	8.25	8.85
“ 1833.	“ 1 “ “ . . . . .	7.70	8.00	8.30	8.60	8.90	9.20	9.50	9.80	10.40

Order by this Catalogue Figure Number, stating size wanted.

## "STAR" HYDRANT AND STREET WASHER.



Fig. 1834.

Fig. 1834 represents our "Star" Hydrant and Street Washers, which for several years have had an extensive sale, and, as shown in cut, are very heavy, strong and substantial.

They are perfectly anti-freezing. They are made to set in the ground any depth, from eighteen inches to six feet. They are almost instantly opened or closed by means of the double-threaded brass screw actuating the valve below. They can be repaired from the top without digging up.

They have a brass swivel or coupling nut (not an iron one), and the tube for service pipe connection is ground to a joint with the valve case elbow.

It would always be well to have a short piece of lead pipe between coupling and service pipe, as its flexibility will prevent a fracture of the pipe when the frost heaves the ground. We measure from ground line to centre of service pipe inlet.

An iron turn key goes with each Street Washer.

We guarantee every one to be thoroughly tested before leaving the factory.

### WALL HYDRANT AND WASHERS.

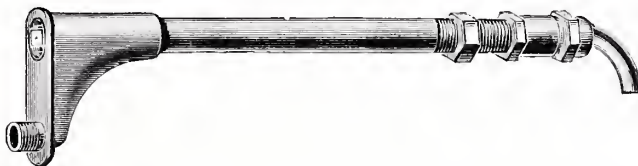


Fig. 1835.

Fig. 1835 represents our new Wall Hydrant and Washer with Compression Valve, designed to pass through the walls of buildings. The water is taken from the inside, and can be opened or shut off from the outside with key, which we furnish.

Fig. 1835. Brass, to take  $\frac{3}{4}$ -inch hose . . . . . \$7.50

" 1835. Nickel Plated, to take  $\frac{3}{4}$ -inch hose . . . . . 8.50

Can furnish fitted for 1-inch hose at same price, if so ordered.



Fig. 1836.

LENGTH TO SET IN GROUND, IN.		18	24	30	36	42	48	54	60	72
Fig. 1834.	For $\frac{3}{4}$ -in. Pipe . . . . .	\$9.25	9.50	9.75	10.00	10.50	11.00	11.50	12.00	13.00
" 1834.	" 1 " " . . . . .	11.75	12.00	12.25	12.50	13.00	13.50	14.00	14.50	15.50
" 1836.	" $\frac{3}{4}$ " " . . . . .	7.75	8.00	8.25	8.50	9.00	9.50	10.00	10.50	11.50
" 1836.	" 1 " " . . . . .	9.25	9.50	9.75	10.00	10.50	11.00	11.50	12.00	13.00

Street Washer Keys, per dozen, \$3.60.

Order by this Catalogue Figure Number, stating size wanted.



NEW PATTERN BOXES.



Fig. 1837.



Fig. 1840.



Fig. 1838.

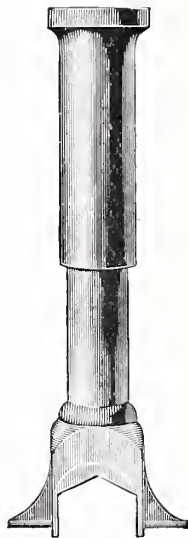


Fig. 1839.



Fig. 1841.

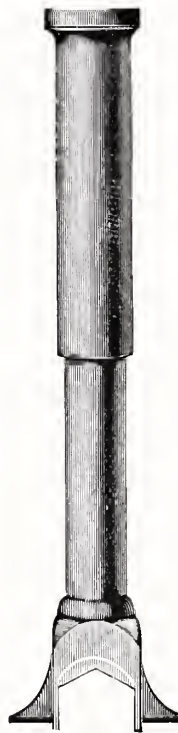


Fig. 1842.



Fig. 1843.

NEW PATTERN SERVICE BOXES—Diameter, 2 1-2 Inches.

Size.	Extension.	Price.	Size.	Extension.	Price.
88.	1 ft. Stationary.	\$1.00	94-D.	3 ft. 6 in. to 4 ft. 10 in.	\$1.45
89-A.	1 ft. 2 in. to 1 ft. 8 in.	1.05	94-E.	3 " 6 " " 5 " 2 "	1.50
90-B.	1 " 6 " " 2 " 3 "	1.10	95-D.	4 " " 5 " 4 "	1.60
91-C.	1 " 9 " " 2 " 9 "	1.15	95-E.	4 " " 5 " 8 "	1.65
92-C.	2 " 3 " " 3 " 3 "	1.20	95-F.	4 " " 6 " "	1.75
92-D.	2 " 3 " " 3 " 7 "	1.25	100-E.	4 " 4 " " 6 " "	1.75
93-D.	2 " 10 " " 4 " 2 "	1.30	100-F.	4 " 4 " " 6 " 4 "	1.80
93-E.	2 " 10 " " 4 " 6 "	1.40	100-Fx.	6 " 8 " " 8 " 8 "	2.25

Nos. 194-D to 200-Fx, inclusive, have round openings in base instead of hexagon.

EXTENSION SECTIONS.

Size.	Extension.	Price.
151.	Increasing length of Service Box 94 in.	\$0.40
152.	" " " " 16 1/2 "	.45
153.	" " " " 28 "	.50
154.	" " " " 36 "	.55

SERVICE BOXES—Diameter of Box, 3 Inches.

Size.	Extension. (Extreme length.)	Price.	Size.	Extension. (Extreme length.)	Price.
0.	Stationary length, 10 in.	\$1.10	4.	2 ft. 10 in. to 4 ft. 10 in.	\$1.55
1.	1 ft. 1 in. to 1 ft. 8 in.	1.20	5.	3 " 6 " " 5 " 6 "	1.75
1 1/2.	1 " 8 " " 2 " 4 "	1.25	7.	4 " " 6 " "	2.00
2.	2 " " 3 " 3 "	1.40	8.	6 " " 8 " "	2.25
3.	2 " 10 " " 4 " 1 "	1.45			
56.	Extension Section increases length 24 inches	.45			

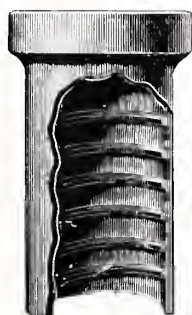
We make for Gas Companies the Nos. 2, 3 and 4 Boxes with special large bases so as to fit over large size gas cocks. No extra charge.

Order by this Catalogue Figure Number, stating size wanted.

# EXTENSION VALVE BOXES.

SECTIONAL VIEW OF 5 1-4-  
INCH VALVE BOX.

5 1-4-INCH SHAFT, INSIDE DIAMETER IN  
SMALLEST PART.



These Dimensions are with No. 6 Base.

		Price.
Size AAA	Stationary length, 1 foot, 5 inches. . . . .	\$3.35
" AA	Extension 1 ft., 10 in., up to 2 ft., 4 in. . . . .	3.85
" A	" 2 " 4 " " 3 " 2 " . . . . .	4.05
" B	" 3 " " 4 " " . . . . .	4.25
" C	" 3 " 6 " " 4 " 6 " . . . . .	4.45
" CC	" 4 " " 5 " " . . . . .	4.70
" D	" 3 " 6 " " 5 " 6 " . . . . .	4.85
" DD	" 4 " " 6 " " . . . . .	5.10
" E	" 5 " " 6 " " . . . . .	5.25
" F	" 5 " " 7 " " . . . . .	5.45
" G	" 6 " " 7 " " . . . . .	5.70
" H	" 6 " " 8 " " . . . . .	5.95

No. 58. Extension, for 5½-inch Valve Boxes, increasing  
length 14 inches . . . . . 1.00

7-INCH SHAFT, INSIDE DIAMETER IN  
SMALLEST PART.

\*Price.

Size II	Extension, 1 ft., 9 in., up to 2 ft., 3 in. . . . .	
" I	" 2 " 3 " " 3 " 3 " . . . . .	
" J	" 2 " 9 " " 3 " 9 " . . . . .	
" K	" 3 " 3 " " 4 " 3 " . . . . .	
" KK	" 4 " " 5 " " . . . . .	
" L	" 3 " 3 " " 5 " 2 " . . . . .	
" LL	" 4 " " 6 " " . . . . .	
" M	" 5 " " 6 " " . . . . .	
" N	" 5 " " 7 " " . . . . .	
" O	" 6 " " 7 " " . . . . .	
" P	" 6 " " 8 " " . . . . .	

Base No. 6 is 11 inches high. When other sizes of bases are  
used, the height of box is increased or decreased according to  
base used.

The above Valve Boxes are with No. 6 Base.

With No. 4, Round Base, reduce price . . . . .	Each. \$0.25
" " 140, Dome Base, same as above. . . . .	" .25
" " 8, Round Base, add to net price . . . . .	" 1.25
" " 16, " " " " " " . . . . .	" 4.00
" " 16-24, " " " " " " . . . . .	" .35
" " 160, Oval Base " " " " " " . . . . .	" 1.25
" " 162, " " " " " " . . . . .	

\* Prices upon application.

Order by this Catalogue Figure Number, stating size wanted.

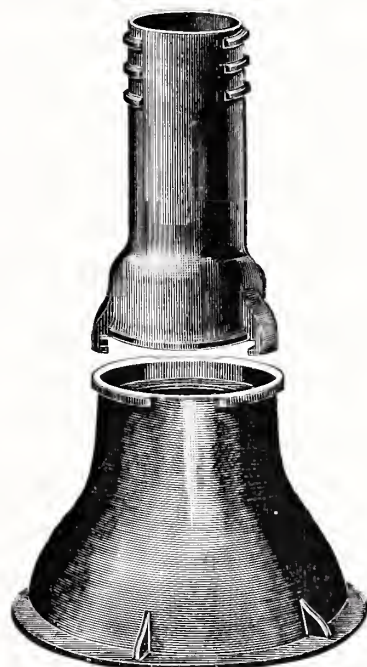


Fig. 1844.

# JARECKI'S EXTENSION SERVICE BOXES.

FOR WATER OR GAS.

JARECKI'S SERVICE BOX.

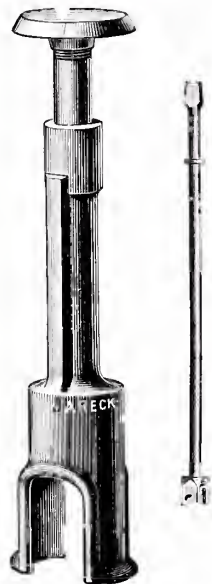


Fig. 1845.

SECTIONAL VIEW.

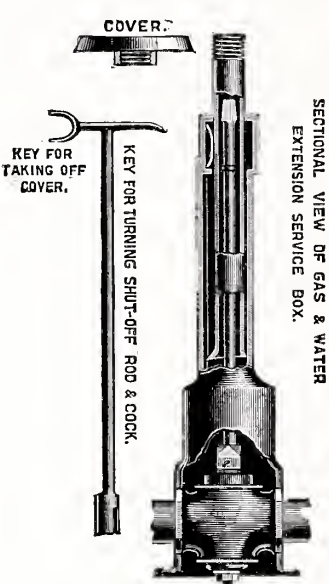


Fig. 1846.

No.	Size Cocks.	Extends.	Price.	No.	Size Cocks.	Extends.	Price.
3	$\frac{1}{2}$ and $\frac{3}{4}$ in.	1 ft. 6 in. to 2 ft. 4 in.	\$1.00	28	$\frac{3}{4}$ and 1 in.	4 ft. 2 in. to 5 ft. 6 in.	\$1.25
5	" " "	2 " " 3 " 0 "	1.05	29	" " 1 "	4 " 7 " 6 " 0 "	1.30
6	" " "	1 " 8 " 3 " 0 "	1.05	32	" " 1 "	5 " 10 " 7 " 2 "	1.40
8	" " "	2 " 6 " 3 " 10 "	1.10	35	$1\frac{1}{4}$ " $1\frac{1}{2}$ "	1 " 6 " 2 " 4 "	1.00
10	" " "	3 " 4 " 4 " 8 "	1.20	37	$1\frac{1}{4}$ " $1\frac{1}{2}$ "	2 " 6 " 3 " 0 "	1.05
11	" " "	3 " 9 " 5 " 1 "	1.25	40	$1\frac{1}{4}$ " $1\frac{1}{2}$ "	2 " 6 " 3 " 10 "	1.10
12	" " "	4 " 2 " 5 " 6 "	1.25	42	$1\frac{1}{4}$ " $1\frac{1}{2}$ "	3 " 4 " 4 " 8 "	1.20
13	" " "	4 " 7 " 6 " 0 "	1.30	45	$1\frac{1}{4}$ " $1\frac{1}{2}$ "	4 " 7 " 6 " 0 "	1.30
14	" " "	5 " 0 " 6 " 4 "	1.30	47	$1\frac{1}{4}$ " $1\frac{1}{2}$ "	5 " 5 " 6 " 9 "	1.35
16	" " "	5 " 10 " 7 " 2 "	1.40	51	2 in.	1 " 6 " 2 " 4 "	1.10
19	" " 1 "	1 " 6 " 2 " 4 "	1.00	53	2 "	2 " 2 " 3 " 0 "	1.15
21	" " 1 "	2 " 2 " 3 " 0 "	1.05	57	2 "	2 " 11 " 4 " 3 "	1.25
22	" " 1 "	1 " 8 " 3 " 0 "	1.05	60	2 "	4 " 2 " 5 " 6 "	1.35
24	" " 1 "	2 " 6 " 3 " 10 "	1.10	63	2 "	5 " 5 " 6 " 9 "	1.45
26	" " 1 "	3 " 4 " 4 " 8 "	1.20	64	2 "	5 " 10 " 7 " 2 "	1.50
27	" " 1 "	3 " 9 " 5 " 1 "	1.25				

## ROUND HEAD ROADWAY BOXES.

CHICAGO AND BUFFALO PATTERNS—Fig. 1844.

Same as Fig. 1844, but with Base and Body in one piece.  
4½-inch Inside Diameter, 7-inch Inside Diameter at Base. Base and body in one piece.

NUMBER . . . . .	1	2	3	4	5	6
Extends from. . . . .	18 to 24	27 to 34	27 to 42	34 to 48	39 to 54	46 to 60
Each . . . . .	\$2.00	2.15	2.35	2.45	2.55	2.65

Roadway Box Extension Section will increase length of Box 18 inches . . . . . \$0.65  
Order by this Catalogue Figure Number, stating size wanted.

# LUDLOW HYDRANTS.

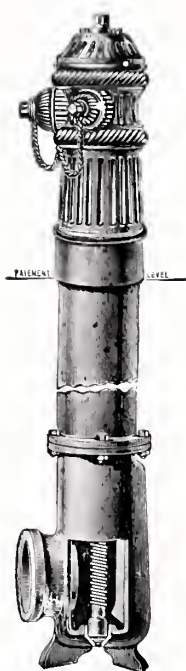


Fig. 1847.

- In ordering Hydrants, please
- 1st. Give diameter of Stand Pipe.
  - 2d. Give length of Hydrant from surface of ground to bottom of connecting pipe.
  - 3d. Give size of bottom connection.
  - 4th. Give number and size of Nozzles, and either exact diameter at top and bottom of nozzle thread, and number of threads to the inch, or send a sample nozzle or nozzle cap; or refer to some standard that we may have.
  - 5th. State kind of nut: whether four or five sided, and length of side.
  - 6th. State whether you wish to open the Hydrant by turning to the right like the hands of a watch, or to the left.
- Do not fail to send gauge to cut thread on nozzles.



Fig. 1848.

## RUBBER-FACED SLIDE GATE FIRE HYDRANT.

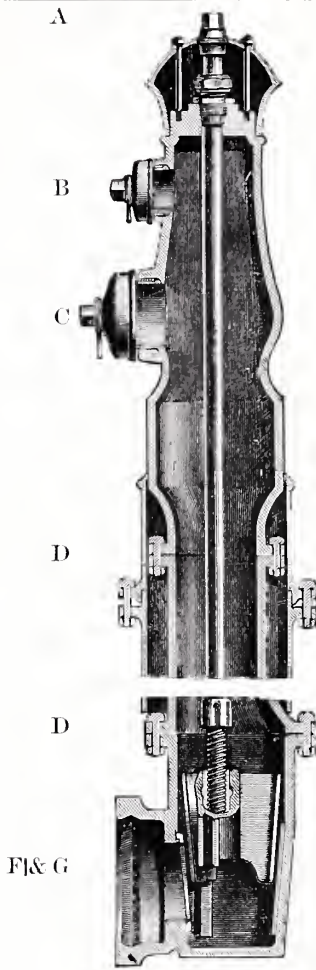
Diameter of Pipe Connect'n Inches.	Inside Diam. of Stand Pipe. Inches.	Diam. of Seat Ring or Gate Opening. Inches.	One 2 Nozzle.	One 2 1-2 Nozzle.	Two 2 1-2 Nozzles.	Three 2 1-2 Nozzles.	Four 2 1-2 Nozzles.	Six 2 1-2 Nozzles.
2	3	2	\$17.00	...	...	...	...	...
3 or 4	4 $\frac{1}{2}$	3	...	28.00	...	...	...	...
3 " 4	5 $\frac{1}{4}$	4	...	31.00	33.00	35.00	...	...
6	5 $\frac{1}{2}$	4	...	31.50	33.50	35.50	...	...
6	6 $\frac{1}{4}$	4 $\frac{1}{2}$	...	...	...	37.50	39.50	...
4 or 6	7	5	...	...	40.50	42.50	...	...
6	8	6	...	...	50.00	52.00	54.00	...
8	8	6	...	...	51.25	53.25	55.25	...
8 or 10	10	8	...	...	...	...	...	130.00

One Steamer Nozzle.	One Steamer and One 2 1-2 Nozzle.	One Steamer and Two 2 1-2 Nozzles.	Frost Case, Standard Length.	For each 6 inches more or less than Standard Length of Stand Pipe, add to or deduct from List.	For each 6 inches more or less than Standard Length of Frost Case, add to or deduct from List.	Independent Nozzle Gate, Each.
...	...	...	...	.45	...	...
...	...	...	4.50	.60	.44	...
\$33.00	35.00	37.00	5.00	.75	.50	3.50
33.50	35.50	37.50	5.00	.75	.50	3.50
35.50	37.50	39.50	5.60	.80	.58	3.50
40.50	42.50	44.50	6.50	.85	.70	3.75
50.00	52.00	54.00	7.50	1.00	.90	3.75
51.25	53.25	55.25	7.50	1.00	.90	3.75
...	...	...	11.00	2.25	1.30	4.50

The above prices are based on our standard length, viz.: Five feet from ground surface to bottom of connecting pipe. Frost Cases are furnished, if wanted, though experience has shown that with our Rubber Gate they are not needed to prevent freezing.

Order by this Catalogue Figure Number, stating size wanted.





# CHAPMAN HYDRANTS.

In ordering Chapman Fire Hydrants, save all annoyance of delay by giving full details as described below.

- Size and form of nut to open hydrant (A)?
- Number hose nozzles (B)?
- Number steamer nozzles (C)?
- With or without frost eases (DD)?
- Length from pavement to bottom (E)?
- Size of connection to main (F)?
- Bell, screw, flange or spigot connection (G)?
- Inside diameter to stand pipe, 3½, 4½, 5½ or 6½ inches (H)?



Fig. 1850.

R, turn to right; L, turn to left to open.  
Do not fail to send gauge to cut thread or nozzles by. We prefer one of your hose couplings, but if not convenient, send nozzle cap off one of your hydrants.

Post Hydrants. Metal Gate to bear heavy pressure.  
Composition Mounted. Water Babbit Seats.

Fig. 1849.

## CHAPMAN GATE FIRE HYDRANT.

STANDARD DIMENSIONS.	Without Frost Case.		Frost Case Additional.		Each Hose Nozzle Additional.		Each Steamer Nozzle Additional.		Each Ft. in Length of Stand Pipe, Add or Deduct.	
	Weight.	Price.	Weight.	Price.	Weight.	Price.	Weight.	Price.	Weight.	Price.
3-inch Hydrant. Diameter of Stand Pipe, 3 1-4 in. Length Pavement to Bottom, 5 ft. One 2 1-2-in. Hose Nozzle.	243 lbs.	\$25.00	68 lbs.	\$4.10	6 lbs.	\$1.45	17 lbs.	\$3.50	20 lbs.	\$0.90
4-inch Hydrant. Diameter of Stand Pipe, 4 1-4 in. Length Pavement to Bottom, 5 ft. Two 2 1-2-in. Hose Nozzles.	340 "	31.85	81 "	4.75	6 "	1.45	17 "	3.50	29 "	1.35
5-inch Hydrant. Diameter of Stand Pipe, 5 1-4 in. Length Pavement to Bottom, 5 ft. Two 2 1-2-inch Hose and one Steamer Nozzle.	425 "	41.00	88 "	5.15	6 "	1.45	17 "	3.50	34 "	1.65
6-inch Hydrant. Diameter of Stand Pipe, 6 1-4 in. Length Pavement to Bottom, 5 ft. Two 2 1-2-in. Hose and one Steamer Nozzle.	560 "	51.35	114 "	6.60	6 "	1.45	17 "	3.50	40 "	1.90

Each foot in length of Frost Case, add or deduct, 3-inch Hydrant, 60c.; 4-inch Hydrant, \$1.00; 5-inch Hydrant, \$1.10; 6-inch Hydrant, \$1.40.  
Order by this Catalogue Figure Number, stating size wanted.

# NATIONAL METER CO.'S WATER METERS

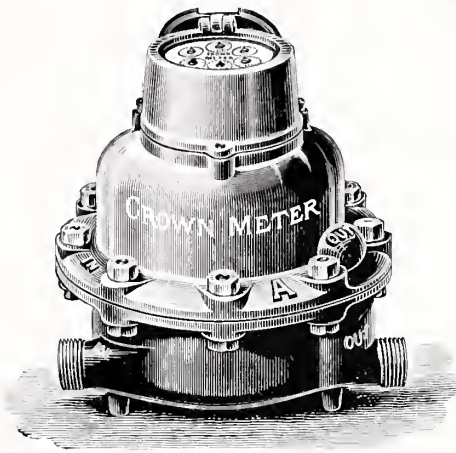


Fig. 1851.

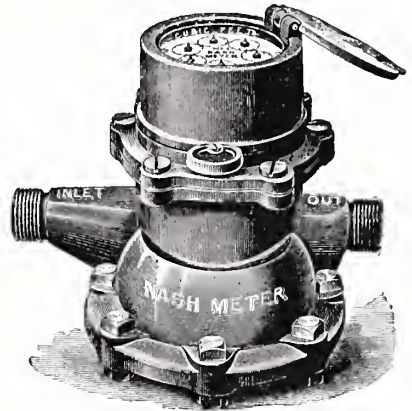


Fig. 1852.

MORE THAN 125,000 IN USE.



Fig. 1853.

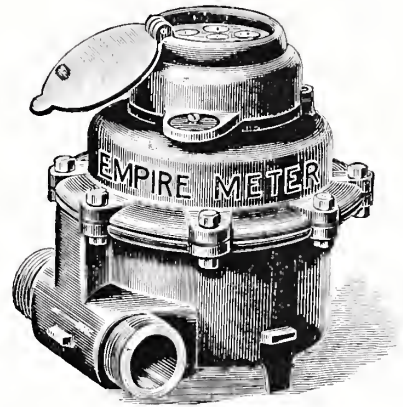


Fig. 1854.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{1}{2}$ or $\frac{5}{8}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2	3	4	6	10
Fig. 1851. "Crown" . . . . .	\$11.43	15.44	25.66	34.32	61.11	83.33	166.66	333.33	666.66	. . .
" 1852. "Nash" . . . . .	. . .	14.50	23.00	32.50	50.00	80.00	133.33	320.00	600.00	. . .
" 1853. "Gem" . . . . .	. . .	. . .	. . .	. . .	. . .	55.00	110.00	220.00	500.00	1100.00
" 1854. "Empire" . . . . .	. . .	15.44	23.16	30.99	. . .	55.00	. . .	250.00	. . .	. . .

Fig. 1851 is the standard Meter for general use. Fig. 1852 is an accurate and reliable "Disc" Meter. Fig. 1853 is for Locomotive Stand Pipes, Fire Pipes, Elevator Pipes, or large Supply Pipes. Fig. 1854 is for Hot or Boiling Water, Petroleum, and Boiler Feed Work.

We make Meters with Extension Dials, and prices will be furnished on application.

Half-inch connections can be furnished with  $\frac{3}{8}$  Meters, if desired.

Connections are made only for  $\frac{3}{8}$ -inch,  $\frac{1}{2}$ -inch,  $\frac{3}{4}$ -inch and 1-inch meters, and are always sent with these sizes, unless we are otherwise instructed. These sizes are made with male threads, while the  $1\frac{1}{2}$ -inch and 2-inch meters have female threads. All threads are cut to fit standard pipe. The 3, 4 and 6-inch meters are made with flanges. The prices of flanges drilled, faced, with bolts, and packings, per set, are: 3-inch, \$1.11; 4-inch, \$1.66; 6-inch, \$2.22.

Fish Traps are made for all of our meters. Prices:  $\frac{3}{8}$ -inch,  $\frac{1}{2}$ -inch,  $\frac{3}{4}$ -inch and 1-inch, \$5.55 each;  $1\frac{1}{2}$ -inch and 2-inch, \$6.66; 3-inch, \$11.10; 4-inch, \$16.66; 6-inch, \$22.22.

## DRIVEN AND TUBULAR WELLS.

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We are so often asked for instructions in reference to sinking wells of this class, that the oft-repeated requests have led us to make the following brief remarks. These wells are designated and divided into three kinds, viz : Driven, Drilled, and Tubular, each requiring special tools for properly putting them down. We will describe them in the order named.

**DRIVEN WELLS**—These wells, as generally known, are made by driving pipe into the ground, with a Drive Well Point, similar to those shown on pages 637, 638 and 639, screwed on to the lower end. In successfully putting down these wells proper tools must be used, although in some sections water is so easily reached, that an inexperienced person with the crudest implements meets with the best of success. But to the person who intends to make well-driving a business we direct our remarks.

After carefully selecting a place where it is desirable to put down a well, with a fair assurance that no rocks will be met while driving, select such Drive Well Point as is best suited for the place. We recommend for sandy, light land Fig. 1855, and for hard, stony land Washer Point, Fig. 1859. We would here caution about selecting too small a point and pipe or too short a point, with an object of saving a few dollars, for the saving made at the start will sometimes end in utter failure or at least a loss of much valuable time.

Select the kind and size of pipe to be driven and have it cut in short lengths of 4 to 6 feet with clean cut threads and good couplings. Too much care cannot be directed to these matters. If you are not already supplied with tools we would recommend a Drive Cap, Fig. 1870, to receive the blows, and Wood-faced Maul, Fig. 1864. For our own use we prefer the Two-Arm Driver, Fig. 1869, used in connection with the Wrought Iron Drive Head, Fig. 1870, to a maul of any kind, being much easier to use and more effective. In case an iron-faced maul is used always use a Wood Block, similar to Fig. 1871, to receive the blow, as it is disastrous to the threads and couplings to strike iron to iron. In addition to the above mentioned tools, it will be necessary to use two pair of tongs or wrenches.

Having selected the point, pipe and tools, attach the point to one length of pipe ; see that the joints are screwed tightly ; on top of this pipe place the Drive Cap and proceed to drive the pipe. Continue this operation, removing cap when necessary to attach more pipe. It is quite necessary that the pipe should be turned occasionally, and held steadily at all times to keep the pipe straight. Always turn to the right, to prevent unscrewing the pipe below the service.

When water is reached it can be determined to the experienced ear by the peculiar sound when the open pipe is struck by the hand or a block of wood. Generally it is necessary to drop a plumb line and ascertain the depth of water in the pipe, and if thought sufficient, a sand pump should be put on and the well thoroughly pumped. We would recommend a large cylinder pump for sand pumping, as the suction of the pump will often clear the gauze of the drive point should it have become clogged. An accurate account of all pipe used, including length of point, should be kept, so as to readily tell if sand has worked into the point and shuts off the supply of water. If so, use Fig. 1897, cleaning the pipe and trying anew with the pump.

If water is not readily found, proceed to drive deeper, and repeat the above operation until a satisfactory well is obtained.

Where a clay formation is necessary to be passed through, as water is never found in clay, we should advise the use of Augers, represented by Figs. 1881 to 1884. These tools remove a core large enough for the point to enter, and saves the laborious work of driving, besides the possibility of weakening the pipe and couplings.

We do not recommend any point that has not a full round opening from end to end so as to permit a free cleaning out if they fill with sand while being driven. In using drive points many chances of success are taken, and especially so in sections where the nature of the soil is unknown by the operator.

In case it is desirable to withdraw the pipe, as it often is, and it cannot be done by the use of chain and strong lever, we recommend our Pipe Puller, as shown under Fig. 1875. In using lever and chain, a good way is to have an assistant bear down on the lever while the operator strikes the drive cap as in driving ; the reaction of the lever usually will have the desired effect.

Our Patent Sleeve Couplings (Fig. 1888) cannot be too highly recommended for well driving of any kind.



## DRIVEN AND TUBULAR WELLS—CONTINUED.

**DRILLED WELLS**—These wells differ in many respects from the Driven Wells, and in many sections are put down successfully where the use of the Drive Point is of little service.

In sinking this class of wells the operator has the advantage of knowing the kind of soil he is passing through, as the earth is washed out, thus making a cavity the size of the pipe into which the pipe is driven. Wells of this class are sunk to a depth of 200 feet or more, the water rising generally to suction distance of the surface, but in cases where this is not so, the Tubular Well, next described, provided the pipe is 2-inch at least, can be used to advantage, thus saving the expense of sinking a dry well.

In putting down Drilled Wells never use smaller than 1½-inch pipe, and 2-inch is preferable; have the pipe cut in lengths of 4 feet or 5 feet long. Select one piece of pipe 2 feet long for bottom piece, threaded on each end, drill four rows of 10 holes each about ¼ to ⅜-inch in size; this piece will serve as a Well Point. On the lower end of point, screw a Steel Shoe, as shown in Figs. 1866 and 1867, couple on a length of pipe and drive point into the ground the same as in a Driven Well. The object of doing this before drilling is to make a water-tight connection between the pipe driven and the earth, so when the drill is being worked under water pressure from the Force Pump, the water forced down through the drill pipe will not come to the surface outside of the well pipe, but will rise inside, bringing with it the sand, clay or whatever soils the drill is passing through. Having proceeded as above, attach to Drill, Fig. 1862, a short length of ¾-inch extra strong pipe with upper end screwed into Steel Well Head, Fig. 1861, attached to opening in side of Well Head a ¾-inch hose connected to force pump, which is used in forcing the water through the ¾-inch drill pipe and out of the small holes in shank of Drill, Fig. 1862. Fig. 1676, Buckeye Pump, shown on page 542, used on a barrel, is a very satisfactory pump for use in putting down this class of well. By taking hold of handles on drill head and working the drill at the same time the force pump is operated, the hard-pan, clay, sand or substance the drill stirs up, will be raised by force of the water and pass out of main pipe at the surface. The drill should be worked below the end of well pipe as far as practicable, then removed and the well pipe driven down into the cavity made by the drill.

This operation should be continued until coarse gravel is reached containing water. When water is struck the fact is easily known, as the water forced down through the ¾-inch drill pipe will remain with the underground current and not rise in the well pipe.

We recommend in sinking wells of 2-inch or larger, that 1-inch pipe be used for drill pipe in place of ¾-inch.

After water is reached attach pump and thoroughly exhaust sand, and a Sand Chamber, Fig. 1902, is strongly recommended before attaching pump for permanent use.

These wells will not give satisfaction usually when the point is left in sand, as it will rise in the open pipe and clog the suction. When the point is left in coarse sand with a good supply of water, and the sand gives trouble by rising in the pipe, a few quarts of coarse gravel poured into the well pipe, or enough to cover the holes drilled in side of point, will very often remedy the trouble, but whenever possible leave the point in gravel, which can be found at some depth.

**TUBULAR WELLS USING INSIDE BRASS CYLINDER**—These wells are somewhat new to the Eastern section of the country, and we are the first to introduce the necessary valves and fittings for their successful use. These wells have for a long time been in operation in the West, and while in some sections of the East they cannot be made on account of the rocky soil, they can be used wherever a drilled or driven well can be obtained.

In sinking these wells the operation is exactly the same as in the drilled wells previously described. Instead of using an ordinary suction pump, as on the other wells, in the Tubular Well a brass cylinder is fastened in the well pipe either at the extreme lower end or within suction distance of the water.

It will at once be seen that these wells have great advantage where the water does not rise to within suction distance of the surface. It will also be noticed with what ease the valves are withdrawn from the tube and repaired.

Fig. 1905 shows the manner of completing these wells as generally put down in sandy soil, showing the Steel Shoe, Tubular Well Screen Point to prevent sand from entering the cylinder, the Dog Spring Coupling and Expansion Ring for fastening cylinder into pipe.



## DRIVEN AND TUBULAR WELLS—CONTINUED.

**DIRECTIONS FOR SETTING TUBULAR WELL CYLINDERS**—When well is finished and ready for screen point, and you wish to locate Cylinder at the bottom of the pipe, on the end of screen point, screw the point to the lower end of cylinder, see Fig. 1907; remove both valves, drop the setting tool, Fig. 1912, into the slot at the bottom of the cylinder, and give it a half turn. The upper end of setting tool is fitted for 1-inch pipe; screw this on to your drill rod or pipe, and lower the cylinder into the well; when the point has been crowded down to its place, turn the setting tool to the right; this expands the rubber packing at the bottom of the cylinder and makes the joints perfect between the cylinder and the pipe of the well; take out the setting tool, and lower the valves with the pump rod.

If you wish to locate the cylinder above the screen point and separate from it, set the point in the usual way; attach the Spring Dog Coupling, Fig. 1906, to the end of the Cylinder, Fig. 1907,—this holds the cylinder to its place in the pipe,—using the setting tool as described above; crowd it down in the pipe to a point where you wish to locate it, expand the rubber packing, lower the valves, and the well is finished.

We advise using the Spring Dog Coupling, Fig. 1906, and locating cylinder above the screen point, as shown in cut, Fig. 1905.

Should it ever become necessary to remove the lower valve, detach the pump rod from pump lever, drop piston valve on the lower valve and give it a half turn, and both can be removed at once, and by using the setting tool the entire cylinder may be withdrawn from the pipe.

**TUBULAR WELL USING OUTFIT FIG. 1909**—A very good idea of this Well can be had from the cut, Fig. 1909. It shows the bottom section, and contains all the working parts of the Tubular Well in their proper places. The Working Barrel, or Cylinder, is four feet in length, and is made of the best lap-welded wrought iron tubing—extra strong—being twice the thickness of common pipe. After the Cylinder is completed, the outside diameter remains the same, but the inside is of three different diameters; the lower one being the smallest, and terminating at the top in a shoulder, on which the Strainer coupling rests; the next largest terminates in a tapering valve seat in which the Check Valve is seated; and the largest forming the chamber in which the plunger works.

The Plunger Chamber is smaller in diameter than common pipe—which not only allows the Plunger to be removed very easily, but prevents the leather from being worn out in passing through rough pipe. This chamber is bored out, and then polished as smooth as a gun barrel, and, being so hard, will never wear rough.

The Valves are made entirely of brass, and will last forever, there being nothing to rust. The tapering Valve Seat for the Check Valve is made with a reamer of exact size and shape as the Check Valve itself, so that when the latter is seated securely, no pressure that could be applied, even of steam, would cause it to leak.

The lower shoulder, on which the Strainer coupling rests, is perfectly square, and the coupling is turned to fit the bore exactly, so that no sand can possibly get past.

In addition to the above valuable qualities of this Well, the Cylinder is made with a heavy steel ring welded to the bottom of it, to prevent the edges from turning in or breaking off, when driven through gravel, hard-pan, or stony soil of any description. This steel ring is of cold-chisel temper, and thus armed our Cylinder can be driven where none other could possibly go.

For prices, see page 649.

**TUBULAR WELL USING OUTFIT FIG. 1911**—Use a cylinder exactly like our tubular well cylinder, except that it is only 16 inches long, with a reducing coupling at bottom to screw screen to. The valves are the same as are used in our tubular well cylinder—the valves of one will fit the cylinder of the other. The pipe above cylinder to be same diameter as cylinder itself, so that the Check Valve and Plunger can be put in after the well is driven, and are put in the same as in a tubular well. We use ash rods, which will float; and thus the pump will work three times as easy as the old way. To repack Plunger, it is taken up through the pump. We furnish these cylinders in three sizes, 2, 2½ and 3 inches. For prices, see page 649.

We shall take pleasure at any time in giving special information in regard to the use of any of our tools, or in regard to work, intended or in progress.

**PUMPS**—In selecting pumps for Tubular Wells, owing to the small diameter of cylinder, we recommend a 10-inch pump head (Figs. 1698, 1699 and 1700), which we can at all times furnish, together with wooden plunger rod and clamps complete.

## BRASS JACKET DRIVE WELL POINTS.

MADE OF GALVANIZED IRON.



Fig. 1855.

	Trade No.	Length, Feet.	Jacket, Inches.	Holes.	PRICES BY THE DOZEN.			
					No. 60 Gauge	No. 80 Gauge	No. 90 Gauge	No. 100 Gauge
1-inch Points, Galv. . . .	74	2	18	70	\$33.00	46.00	52.00	62.00
1 " " " " . . .	76	2 $\frac{1}{2}$	24	100	42.00	56.00	64.00	78.00
1 " " " " . . .	78	3	30	120	51.00	66.00	76.00	94.00
1 " " " " . . .	80	3 $\frac{1}{2}$	36	140	60.00	76.00	88.00	120.00
1 " " " " . . .	82	4	42	160	69.00	86.00	100.00	136.00
1 " " " " . . .	84	4 $\frac{1}{2}$	48	190	78.00	96.00	112.00	152.00
1 $\frac{1}{4}$ " " " " . . .	86	1 $\frac{3}{8}$	14	80	30.00	42.00	50.00	64.00
1 $\frac{1}{4}$ " " " " . . .	90	2	18	100	36.00	52.00	60.00	80.00
1 $\frac{1}{4}$ " " " " . . .	94	2 $\frac{1}{2}$	24	125	46.00	64.00	75.00	100.00
1 $\frac{1}{4}$ " " " " . . .	98	3	30	150	56.00	76.00	90.00	120.00
1 $\frac{1}{4}$ " " " " . . .	100	3 $\frac{1}{2}$	36	175	66.00	88.00	105.00	140.00
1 $\frac{1}{4}$ " " " " . . .	102	4	42	200	76.00	100.00	120.00	160.00
1 $\frac{1}{4}$ " " " " . . .	106	4 $\frac{1}{2}$	48	225	86.00	112.00	135.00	180.00
1 $\frac{1}{4}$ " " " " . . .	110	5	54	250	96.00	124.00	150.00	200.00
1 $\frac{1}{4}$ " " " " . . .	112	5 $\frac{1}{2}$	60	275	106.00	136.00	165.00	220.00
1 $\frac{1}{4}$ " " " " . . .	114	6	66	300	116.00	148.00	180.00	240.00
1 $\frac{1}{2}$ " " " " . . .	136	2	18	120	48.00	65.00	78.00	94.00
1 $\frac{1}{2}$ " " " " . . .	140	2 $\frac{1}{2}$	24	160	60.00	80.00	96.00	118.00
1 $\frac{1}{2}$ " " " " . . .	144	3	30	200	72.00	95.00	114.00	142.00
1 $\frac{1}{2}$ " " " " . . .	146	3 $\frac{1}{2}$	36	230	84.00	110.00	132.00	166.00
1 $\frac{1}{2}$ " " " " . . .	148	4	42	270	96.00	125.00	150.00	180.00
1 $\frac{1}{2}$ " " " " . . .	150	4 $\frac{1}{2}$	48	310	108.00	140.00	168.00	204.00
1 $\frac{1}{2}$ " " " " . . .	152	5	54	350	120.00	155.00	186.00	228.00
1 $\frac{1}{2}$ " " " " . . .	154	5 $\frac{1}{2}$	60	390	132.00	170.00	204.00	252.00
1 $\frac{1}{2}$ " " " " . . .	156	6	66	420	144.00	185.00	222.00	276.00
2 " " " " . . .	160	2	18	140	75.00	94.00	110.00	130.00
2 " " " " . . .	164	2 $\frac{1}{2}$	24	200	90.00	112.00	132.00	160.00
2 " " " " . . .	168	3	30	260	105.00	130.00	154.00	190.00
2 " " " " . . .	170	3 $\frac{1}{2}$	36	290	120.00	148.00	176.00	220.00
2 " " " " . . .	172	4	42	330	135.00	166.00	198.00	250.00
2 " " " " . . .	174	4 $\frac{1}{2}$	48	380	150.00	184.00	220.00	280.00
2 " " " " . . .	176	5	54	430	165.00	202.00	242.00	310.00
2 " " " " . . .	178	5 $\frac{1}{2}$	60	480	180.00	220.00	264.00	340.00
2 " " " " . . .	180	6	66	530	195.00	238.00	286.00	370.00
2 $\frac{1}{2}$ " " " " . . .	184	3	30	300	180.00	230.00	260.00	300.00
2 $\frac{1}{2}$ " " " " . . .	188	4	42	360	230.00	300.00	340.00	400.00
2 $\frac{1}{2}$ " " " " . . .	192	5	54	420	280.00	370.00	420.00	500.00
2 $\frac{1}{2}$ " " " " . . .	196	6	66	480	330.00	440.00	500.00	600.00
3 " " " " . . .	200	3	30	300	240.00	310.00	340.00	410.00
3 " " " " . . .	204	4	42	420	300.00	390.00	430.00	520.00
3 " " " " . . .	208	5	54	540	360.00	470.00	520.00	630.00
3 " " " " . . .	212	6	66	660	420.00	550.00	610.00	740.00
4 " " " " . . .	216	4	36	360	480.00	560.00	600.00	700.00
4 " " " " . . .	220	6	60	600	630.00	760.00	840.00	1000.00
4 " " " " . . .	224	8	84	840	780.00	960.00	1080.00	1300.00
4 " " " " . . .	228	10	108	1080	930.00	1160.00	1320.00	1600.00

Prices on larger sizes named on application.



# WASHER DRIVE WELL POINTS.



Fig. 1859.

These Points are made of Galvanized Iron Pipe, bored and countersunk. Each hole is covered with gauze, held in its place by a brass washer, and riveted.

Only the heaviest Gauze, cut from new stock, is used in making these points, and when gauze finer than No. 60 is required, a thickness of No. 60 Gauze is placed under the finer gauze to give the required strength.

Trade No.	Diameter Pipe, Inches.	Length Pipe, Feet.	No. Holes.	PRICE PER DOZEN.			
				No. 60 Gauze.	No. 80 Gauze.	No. 90 Gauze.	No. 100 Gauze.
300	1 $\frac{1}{4}$	1 $\frac{1}{2}$	50	\$30.00	42.00	50.00	64.00
301	1 $\frac{1}{4}$	2	60	36.00	52.00	60.00	80.00
302	1 $\frac{1}{4}$	2 $\frac{1}{2}$	80	46.00	64.00	75.00	100.00
303	1 $\frac{1}{4}$	3	100	56.00	76.00	90.00	120.00
304	1 $\frac{1}{4}$	3 $\frac{1}{2}$	120	66.00	88.00	105.00	140.00
305	1 $\frac{1}{4}$	4	140	76.00	100.00	120.00	160.00
308	1 $\frac{1}{4}$	2	80	42.00	58.00	68.00	90.00
310	1 $\frac{1}{4}$	2 $\frac{1}{2}$	100	52.00	70.00	83.00	110.00
320	1 $\frac{1}{2}$	2	80	48.00	65.00	78.00	94.00
321	1 $\frac{1}{2}$	2 $\frac{1}{2}$	110	60.00	80.00	96.00	118.00
322	1 $\frac{1}{2}$	3	130	72.00	95.00	114.00	142.00
323	1 $\frac{1}{2}$	3 $\frac{1}{2}$	150	84.00	110.00	132.00	160.00
324	2	2 $\frac{1}{2}$	140	90.00	112.00	132.00	160.00
325	2	3	170	105.00	130.00	154.00	190.00
326	2	3 $\frac{1}{2}$	200	120.00	148.00	176.00	220.00
. .	2 $\frac{1}{2}$	3	225	180.00	230.00	260.00	300.00
. .	2 $\frac{1}{2}$	4	325	230.00	300.00	340.00	400.00
. .	2 $\frac{1}{2}$	5	425	280.00	370.00	420.00	500.00
. .	2 $\frac{1}{2}$	6	525	330.00	440.00	500.00	600.00
. .	3	3	250	240.00	310.00	340.00	410.00
. .	3	4	360	300.00	390.00	430.00	520.00
. .	3	5	470	360.00	470.00	520.00	630.00
. .	3	6	580	420.00	550.00	610.00	740.00

Open End Well Point Extensions, made of Wrought Iron Pipe, for 1 $\frac{1}{2}$ -inch and larger Tubular Wells.



Fig. 1860.

Prices on application.



WELL TOOLS.

STEEL HEAD FOR DRILLED WELLS.

Used with 1½, 2 and 2½-mch Pipe.

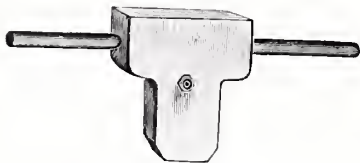


Fig. 1861.

Fig. 1861 illustrates the Steel Head mentioned on page 635 in our Suggestions to Well Drillers. The pipe connecting the Head to Drill is attached at the bottom, and the hose from Force Pump is connected on the side. The opening on the side and bottom is connected in centre of head, thus permitting the water to pass directly from Pump through the Drill Pipe, and out of holes in shank of Drill.

Fig. 1861.	No. 1.	Fitted for ¾-in. Drill Pipe	Each.	\$10.00
" 1861.	" 2.	" 1 "	"	12.00

STEEL DRILLS FOR HAND USE.

This cut, Fig. 1862, shows our Steel Drills referred to under Fig. 1861, and also on page 635. These Drills are indispensable to all who put down open point wells, whether they are Tubular or Drilled. These Drills are successfully used in penetrating clay and hard-pan to most any depth, and thus securing wells where utter failure would result without their use. Made in following sizes:

Fig. 1862.	1½-inch	Each.	\$2.25
" 1862.	2 "	"	3.00
" 1862.	2½ "	"	5.00



Fig. 1862.

250-LB. DRIVE BLOCK.

CAST IRON MAUL.

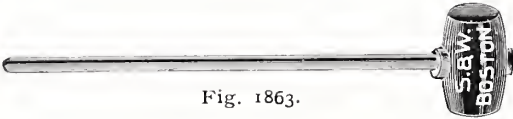


Fig. 1863.

WEIGHT . LBS.	12	14	16	18
Fig. 1863.	Each.	\$0.75	.95	1.15 1.35



Fig. 1865.  
Price, \$10.00

WOOD-FACED MAUL.

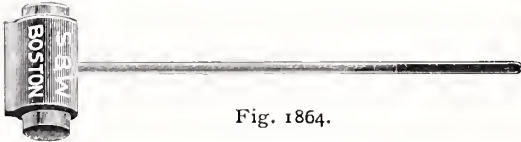


Fig. 1864.

WEIGHT . LBS.	8	10	12	15
Fig. 1864.	Each.	\$0.75	1.00	1.25 1.50

PLAIN SHOE, STEEL.

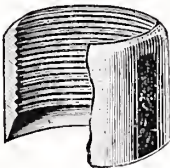


Fig. 1866.

SHOULDER SHOE, STEEL.

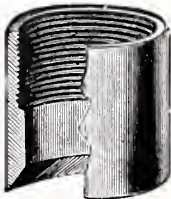


Fig. 1867.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6	8	10
Figs. 1866, 1867. . . . . Each.	\$2.00	3.00	4.50	6.50	8.50	9.50	10.50	15.00	20.00	30.00

Order by this Catalogue Figure Number, stating size wanted.

WELL TOOLS — CONTINUED.

SOLID DRIVING BLOCKS.



Fig. 1868.

Fig. 1868 represents a Patented Drive Block, which is put on the side of the drill rods, and is used for driving the pipe when the drill rods are in the well supplying water or working. Patented May 15, 1888. Price, \$20.00; 300 pounds; 6 cents per pound for extra weight.

WROUGHT IRON DRIVE CAP.



Fig. 1870.

SIZE. . . . . INCHES.	1 1/4	1 1/2	2	2 1/2	3
Fig. 1870 . . . . . Each.	\$1.25	2.00	3.00	4.00	5.50

Fig. 1870 also made of steel. Prices on application.

EXTENSION DRIVE HEAD.



Fig. 1872.

SIZE . . . . . INCHES.	1 1/4	1 1/2	2
Fig. 1872, Wrought Iron . Each.	\$1.50	2.00	3.00
" 1872, Steel . . . . . "	2.00	3.25	4.50

TWO-ARM DRIVER.



Fig. 1869.

Fig. 1869 is used in connection with Fig. 1870. Saves much hard work, and is very effective.

Weight, 65 lbs.

Fig. 1869 . . . . . Each. \$6.00

HARDWOOD DRIVING BLOCK.

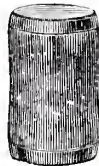


Fig. 1871.

Made with rings on end and intended to receive the blows from Iron Maul. A most serviceable article.

Fig. 1871 . . . . . Each. \$1.50

MALLEABLE IRON DRIVE CAP.



Fig. 1873.

For use in putting down Shallow Drive Wells.

SIZE . . . . . INCHES.	1 1/4	1 1/2	2	2 1/2
Fig. 1873 . . . . . Each.	\$0.72	.90	1.55	2.00

WELL TOOLS—CONTINUED.

GAS PIPE CLAMP.

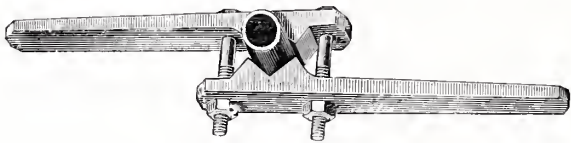


Fig. 1874.

Fig. 1874 . . . . . Each. \$5.00

AUTOMATIC PIPE LIFTER.

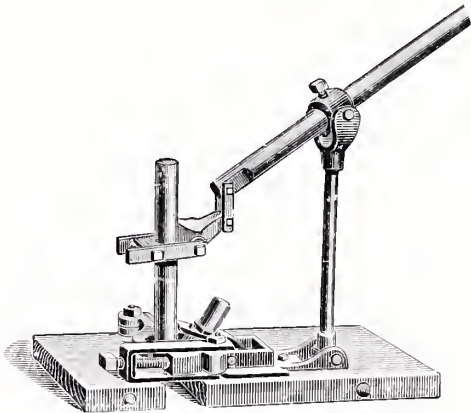


Fig. 1875.

Fig. 1875 is the most perfect machine yet invented for raising and holding pipe, or lowering same into a well.

Fig. 1875. . . . . Each. \$10.00

CASING SWIVELS.

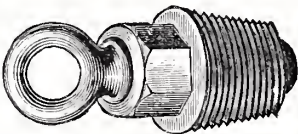


Fig. 1876.

SIZE . . . . . INCHES.	2	2½	3
Number . . . . .	1	2	3
Fig. 1876. . . . . Each.	\$4.00	5.00	7.00

AMERICAN PIPE PULLER.



Fig. 1877.

For taking pipe out that is broken off below the surface. Is made of Tool Steel. It is a very valuable tool.

Fitted for ¾-in. Pipe, to pull 1¼-in. Pipe .	\$5.00	Fitted for 2-in. Pipe, to pull 4-in. Pipe .	\$15.00
“ ¾ “ “ 1½ “ .	6.00	“ 2 “ “ 4½ “ .	16.00
“ ¾ “ “ 2 “ .	7.00	“ 2½ “ “ 5 “ .	20.00
“ 1¼ “ “ 3 “ .	10.00	“ 2½ “ “ 6 “ .	25.00

Order by this Catalogue Figure Number, stating size wanted.

WELL TOOLS—CONTINUED.

CHAPMAN PATENT WELL PIPE PULLER.

PIPE PULLER AS USED.

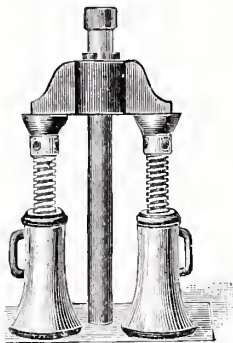


Fig. 1878.

PIPE PULLER.

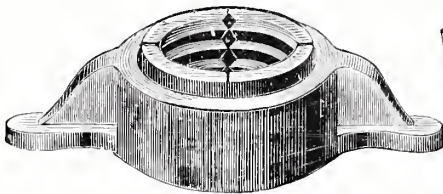


Fig. 1879.

DIES.



Fig. 1880.

Fig. 1878 is used when pulling the Casing with the Jack Screws. The Puller is placed on top of two Jack Screws; the Dies are so shaped that the greater the strain the tighter they hold. There is no danger of the Casing slipping when using. All practical well-men will appreciate this tool.

PIPE PULLER WITH A SET OF DIES — Fig. 1879.

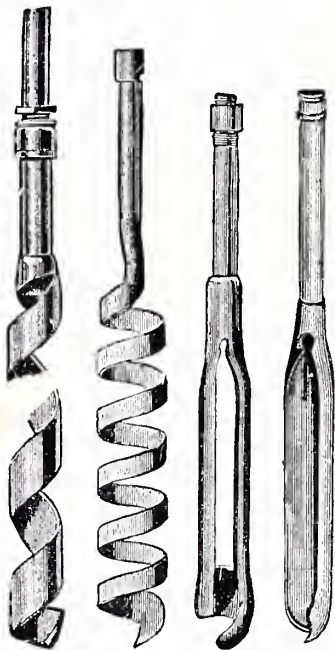
SIZE IRON PIPE IT WILL HOLD, IN INCHES.	$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	7	8	9	10
No. 1, with $\frac{3}{4}$ , 1 or 1 $\frac{1}{4}$ -in. dies . . . . .			2.50													
Extra dies for No. 1, per set . . . . .	\$0.60	.50														
No. 2 . . . . .					2.75											
Extra dies for No. 2 . . . . .		.80	.75	.50	.50											
No. 3, with 2, 2 $\frac{1}{2}$ and 3- in. dies . . . . .							5.00									
Extra dies for No. 3 . . . . .					.80	.75	.75									
No. 4, with 3 $\frac{1}{2}$ or 4-in. dies . . . . .									8.50							
Extra dies for No. 4 . . . . .					3.00	2.50	2.25	2.00	1.75							
No. 5, with 4, 4 $\frac{1}{2}$ or 5-in. dies . . . . .											10.					
Extra dies for No. 5 . . . . .							3.25	3.00	2.75	2.50	2.00					
No. 6, with 4, 4 $\frac{1}{2}$ , 5 or 6-in. dies . . . . .												12.00				
Extra dies for No. 6 . . . . .								3.00	2.75	2.50	2.25					
No. 8, with 6, 7 or 8-in- dies, for 4 screws . . . . .														15.00		
Extra dies for No. 8 . . . . .											4.50	4.00	3.50	3.00		
No. 10, with 7, 8, 9 or 10-in. dies, 4 screws . . . . .																25.00
Extra dies for No. 10 . . . . .														7.00	6.00	5.00

Larger sizes furnished to order. If Jack Screws are wanted, add their cost.  
Order by this Catalogue Figure Number, stating size wanted.



# DRIVEN AND TUBULAR WELL SUPPLIES.

## EARTH AUGERS.



Figs. 1881, 1882, 1883, 1884.

Figs. 1881 to 1884, adjoining, represent various styles of Augers, which are of great assistance many times to well-drivers in making wells.

When it is necessary to drive through clay or hard-pan, it is best to use an auger like one of these here shown, and bore through before driving.

They are provided with a thread on the upper end so they can be lengthened out with a piece of pipe to most any depth.

They are made of the best material, and will bore the fastest and easiest of any augers in the world. Three-inch is the size generally used. They are indispensable to well-men.

SIZE . . . . . INCHES.	2½	3	4	5	6
Fig. 1881. Twist Auger . . .	\$6.00	7.00	10.00	15.00	25.00
" 1882. Ribbon Auger . . .	6.00	7.00	10.00	15.00	25.00
" 1883. Open Pod Auger . .	6.00	7.00	10.00	15.00	25.00
" 1884. Close " " . . .	6.00	7.00	10.00	15.00	25.00

Always threaded for 1-inch pipe unless otherwise ordered.  
Larger sizes made to order.



Fig. 1885.

## SAND PUMP AND DRILL COMBINED.

This little tool is worth its weight in gold to the well-driver. With it a well can be finished in half the time that it takes with one of the old-fashioned flat sand pumps or buckets, which pound the sand and gravel down so tightly in the pipe that well-drivers get discouraged by the amount of time lost in sand pumping.

With this tool, sand pumping is the easiest part of the business, where it formerly was the hardest. The drill keeps the sand and gravel loose, and it is astonishing in how short a time two lengths of sand-pump rods can be filled.



Fig. 1886.

Figs. 1885, 1886.	No. 0, for ¾-inch Coupling, 1½-inch Bit . . . . .	Net.	\$2.50
" 1885, 1886.	" 1, " 1 " " 1¾ " " . . . . .	"	2.50
" 1885, 1886.	" 2, " 1½ " " 2 " " . . . . .	"	3.00
" 1885, 1886.	" 3, " 1½ " " 2½ " " . . . . .	"	4.50
" 1885, 1886.	" 4, " 1½ " " 3 " " . . . . .	"	6.50

## SAND PUMP, SIX FEET LONG.



Fig. 1887.

Used to pump the sand out of screen in new wells.

Fig. 1887. ½-inch, six feet long . . . . .	\$1.50
--	--------

Order by this Catalogue Figure Number, stating size wanted.

# DRIVEN AND TUBULAR WELL SUPPLIES.

## CONTINUED.

### EXTRA STRONG GALVANIZED PIPE.

We have this pipe in the following sizes, made especially for well-driving :  
 1½-inch size, per foot, 38 cents ; 1¾-inch size, per foot, 56 cents ; 2-inch size, per foot, 76 cents.  
 Bored and Reamed Pipe for Tubular Wells, add 5 per cent. to List on plain and galvanized.  
 Discounts quoted on application.

### PATENT SLEEVE PIPE COUPLINGS.

Should be used on every well.

To those who have had trouble with pipe breaking from the use of the ordinary W. I. couplings, we recommend this Sleeve coupling as a most valuable improvement.

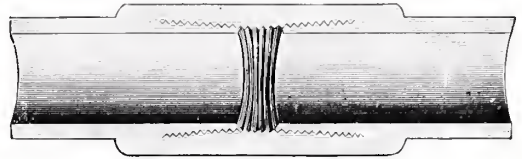


Fig. 1888.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	1¼	1½	2	2½	3	3½	4	4½	5	6
Fig. 1888. Price . . . . .	\$0.10	.12	.15	.25	.30	.40	.60	.80	1.30	1.50	2.00	2.40	2.80
" 1888. " Right and Left . . .	.15	.18	.23	.38	.45	.70	1.20	1.60	2.60	3.00			
" 1888. Galvanized, add 25 per cent.													

### GALVANIZED STEEL PISTON ROD AND COUPLINGS.



Fig. 1889.

This Rod is preferable to common iron rod or gas pipe for connecting pistons on pumps, owing to its being light ; is not bulky, and will not bend. We have this rod made especially for our use, and are now supplying many pump dealers with it.

SIZE . . . . . INCHES.	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
Fig. 1889. Galvanized Steel Rod, per foot . . . . .	\$0.06	.08	.09
" 1889. " Rod Couplings . . . . . Each.	.08	.10	.12
" 1889. " Check Nuts . . . . .	.01	.01	.02

### PIPE REAMER.



Fig. 1890.

Fig. 1890 shows cut of Reamer, for reaming rough places and blisters from inside of pipe or tubing after well is driven, thereby allowing the valves to pass through easily.

Fig. 1890. Price . . . . . \$5.00

### PIPE DRIFTS FOR CLEANING OUT THE INSIDE OF TUBULAR WELL PIPE.



Fig. 1891.



Fig. 1892.

To clean out inside of 2 -inch Pipe . . .	\$2.25	To clean out inside of 2 -inch Pipe . . .	\$3.00
" " " " 2½ " " . . .	3.00	" " " " 2½ " " . . .	4.00
" " " " 3 " " . . .	5.00	" " " " 3 " " . . .	6.00

### WOOD ROD PULLER FOR PULLING BROKEN WOOD ROD.



Fig. 1893.

Fig. 1893. For pulling 1-inch Wood Rod . . . . . \$5.00

### VALVE GRAB FOR TAKING CHECK VALVE OUT OF TUBULAR WELLS.



Fig. 1894.

Fig. 1894. To pull 2-inch Check Valve, \$2.00      Fig. 1894. To pull 3-inch Check Valve, \$3.00  
 Order by this Catalogue Figure Number, stating size wanted.

DRIVEN AND TUBULAR WELL SUPPLIES.  
CONTINUED.

TUBULAR AND ARTESIAN WELL ROD COUPLINGS.

MALLEABLE WOOD ROD  
COUPLING.

ARTESIAN WELL WROUGHT IRON WOOD ROD  
COUPLING.



Fig. 1895.

Fig. 1896.

	Couplings Adapted For.	Malleable.	Galvanized.	Wrought Iron.
Fig. 1895	Tubular Well Wood Rod, 1-in.	60 cts. per pair.	80 cts. per pair.	.....
" 1896	Oil or Arte'n Well Wood Rod, 1½-in.	.....	.....	\$3.50 per pair.

ASH WOOD PLUNGER RODS.

1 and 1½-inch, 15 cents per foot. Prices for larger sizes on application.

SAND BUCKET.



Fig. 1897.

one-half inch gas pipe, if ever so deep a well. This opens out the screen at the bottom in a few minutes.

Fig. 1897, Sand Bucket, is operated by screwing sections of one-half inch gas pipe to it and letting it down into the bottom of the filter point of the well, and raising it up and down the same as churning; but be careful not to strike the bottom with the brass bucket, hard, for fear of jamming it. At every downward motion the muddy water and sand will be discharged from the top of the

	Number.	Adapted For.	Fitted For.	Price.
Fig. 1897 . . . . .	1	1½-inch Wells.	½-inch Pipe.	\$3.00
" 1897 . . . . .	2	1½ " "	½ " "	3.50
" 1897 . . . . .	3	2 " "	½ " "	4.00

SAND BUCKET.



Fig. 1898.

Sand Bucket, four feet long, made of Lap-Welded Tubing with Jar Link to prevent sticking in sand.

SIZE . . . . .	INCHES.	1½	2	2½	3
Fig. 1898 . . . . .		\$5.00	6.00	6.50	7.00

Larger sizes made to order.

SHEET IRON SAND PUMPS.

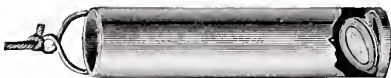


Fig. 1899.

SIZE . . . INCHES.	3	4	5	6	8	10
Fig. 1899 . . Each.	\$5.00	6.00	7.00	8.00	9.00	10.00

Fig. 1899 made of Heavy Galvanized Sheet Iron.  
These are furnished in lengths of 10 feet or more.

COMMON IRON SAND PUMPS.

SIZE, OUTSIDE DIAM. . IN.	3	3½	4	4½	5
Fig. 1900. For 10 feet com. .	\$9.00	10.50	12.00	15.00	20.00
Each additional foot . . . .	1.00	1.25	1.30	1.60	2.10



Fig. 1900.

Order by this Catalogue Figure Number, stating size wanted.



## DRIVEN AND TUBULAR WELL SUPPLIES.

CONTINUED.

## IRON AND COPPER SAND HOLDERS.

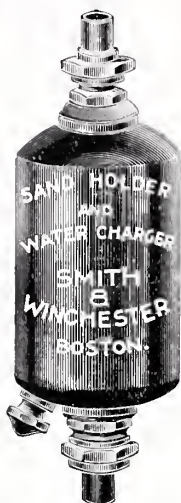
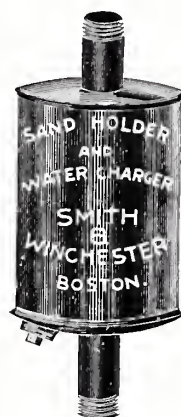


Fig. 1901 shows our improved Iron Sand Holder, which is now extensively used to prevent the sand which passes from the Driven Well entering the pump and getting under the lower valve, thus causing the water to run from the pump. These Sand Holders also act as a Water Charger, there being at all times enough water to prime the Pump in case the leathers become worn. They also act as an Air Chamber, and in this connection are indispensable on any Driven Well. The plug in the bottom can be taken out, should the cylinder need cleaning, and the sand be removed.

Fig. 1902 represents the same as Fig. 1901, only instead of being made of iron it is constructed of strong copper, securely braced. The Copper Chamber holds several times more water than the Iron, and is preferable in every respect.

Fig. 1901.	For 1 $\frac{1}{4}$ or 1 $\frac{1}{2}$ -in. Pipe . . . . .	Each.	\$4.50
1902.	" " " " . . . . .	"	10.00
" 1902.	" 2-in. Pipe . . . . .	"	20.00

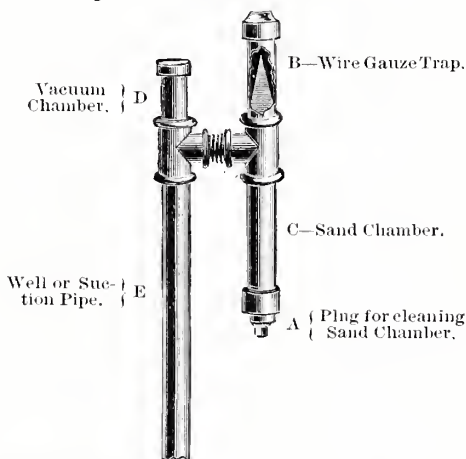
Larger sizes of Fig. 1902 made to order.



## HORIZONTAL SAND CHAMBER.



\*QUIMBY SAND TRAP.



SIZE . . . . INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$
Fig. 1903. . . . Each.	\$7.00	10.00	25.00	45.00

SIZE. . . . INCHES.	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3
Fig. 1904. Plain . .	\$5.00	6.25	8.50	12.00	18.00
" 1904. Galv. . .	6.00	8.00	11.00	16.50	24.50

\*This illustration, Fig. 1904, is one of the most valuable adjuncts ever added to the Driven or Artesian Well line, possessing, as it does, all the merits of the more costly copper chambers. Its simplicity and strength of construction make it practically an everlasting apparatus. By its construction, you will readily notice it is not liable to get out of order, and by its easy access to all other working points, should make for it a great demand.

By placing a stop-cock, instead of a plug, at the point A, it can be freed from sand, without the use of wrenches or other tools. Point B illustrates the wire gauze through which the water passes, and which stops the sand from entering the pump, can easily be cleared by opening the stop-cock referred to and tripping the valve of the pump.

Its principal advantage over the copper chambers is the slight expense with which one of these can be increased to a very large capacity. It can also be used in frost by opening the stop-cock and tripping the valve of the pump, when not in use.

Order by this Catalogue Figure Number, stating size wanted.



# TUBULAR WELL CYLINDERS, VALVES, ETC.

"EUREKA" TUBULAR WELL CYLINDER, SHOWING CYLINDER IN WELL OR PIPE.



Fig. 1905.

DOG COUPLING.



Fig. 1906.

"EUREKA" CYLINDER AS FURNISHED.



Fig. 1907.

WROUGHT IRON TUBULAR WELL CYLINDER.



Fig. 1908.



Fig. 1909.



Fig. 1910.



Fig. 1911.

SETTING TOOL.



Fig. 1912.

# TUBULAR WELL CYLINDERS, VALVES, ETC.— CONTINUED.

## “EUREKA” TUBULAR WELL BRASS CYLINDER— Fig. 1905.

This cylinder, represented by cuts on the preceding page, is made of seamless drawn brass tubing, with suitable valves and wood rod coupling complete. It is set in place after the well is made, using the setting tool attached to the drill rod to crowd it down to its place. The dog spring coupling holds firmly to the walls of the well (the inside of the pipe or casing), while the cylinder proper is revolved by the setting tool as it screws down on the coupling, expanding the rubber packing between the cylinder and coupling and locking it to the pipe. It may be attached to the filter point in the same manner. The valves are more easily taken out for repairs and re-set than any style of Tubular Well Valves ever invented. The “Eureka” Cylinders are fully covered by valid patents. Directions for making these wells and setting cylinders furnished if desired.

	*Size.	For Pipe or Casing.	Stroke.	Without Dog Spring Coupling. Price.	With Dog Spring Coupling. Price.
Figs. 1905, 1907 . .	2 -inch.	2 -inch.	12 inches.	\$10.00	11.50
“ 1905, 1907 . .	2½ “	2½ “	12 “	17.00	18.50
“ 1905, 1907 . .	3 “	3 “	15 “	27.50	29.50
“ 1905, 1907 . .	4 “	4 “	18 “	50.00	56.00
“ 1905, 1907 . .	5 “	5 “	18 “	70.00	78.00

\*The “size” means the size (inside diameter) of pipe or casing these cylinders are suited for.

Setting Tool for Fig. 1907, \$2.50. Special sizes of Fig. 1907 made to order. With 2 and 2½-inch, Fig. 1905, use 10-inch Stroke Pump Head.

## WROUGHT IRON TUBULAR WELL CYLINDER— Fig. 1908.

Size for Pipe.	Length.	Bored and Polished Cylinder. Price.	Brass-Lined Cylinder. Price.
2 -inch.	48 inches.	\$10.00	15.00
2½ “	48 “	14.00	20.00
3 “	48 “	20.00	30.00

Fig. 1908 Cylinders are provided with Steel Shoes.

Strainer Well Points are Listed on pages 637, 638 and 639.

## WROUGHT IRON TUBULAR WELL OUTFIT— Fig. 1909.

No. 2, Comprising Barrel, Valves and Screen for 2 -inch Well . . . . .	\$20.00
“ 3, “ “ “ “ 2½ “ . . . . .	28.00
“ 4, “ “ “ “ 3 “ . . . . .	40.00
“ 5, “ “ “ “ 4 “ . . . . .	66.00
“ 6, “ “ “ “ 4½ “ . . . . .	84.00
“ 7, “ “ “ “ 5 “ . . . . .	100.00

For full description, see pages 634, 635 and 636.

Order by this Catalogue Figure Number, stating size wanted.

TUBULAR WELL CYLINDERS, VALVES,  
ETC.— CONTINUED.

WROUGHT IRON TUBULAR WELL OUTFIT— Fig. 1910.

SIZE . . . . . INCHES.	2	2½	3	3½	4	4½	5	6
Fig. 1910. Complete . . . . .	\$30.00	42.00	30.00	45.00	55.00	63.00	75.00	128.00
Cylinder only . . . . .	10.00	15.00	20.00	30.00	36.00	42.00	50.00	84.00
Check Valve . . . . .	8.00	10.40	16.00	24.00	32.00	40.00	48.00	60.00
Plunger . . . . .	13.40	18.80	26.00	40.00	54.00	60.00	70.00	100.00

For full description, see pages 634, 635 and 636.

WROUGHT IRON TUBULAR WELL OUTFIT— Fig. 1911.

No. 1, Cylinder, Valves and Screen, 2 -inch Pipe . . . . .	\$14.00
" 2, " " " " 2½ " . . . . .	19.00
" 3, " " " " 3 " . . . . .	24.00

For full description, see pages 634, 635 and 636.

OIL AND ARTESIAN WELL VALVES.



Fig. 1913.



Fig. 1914.

Diameter Cylinder.	Price Plunger, Fig. 1913.	Price Lower Valve, Fig. 1914.	Price per Set.	Diameter Cylinder.	Price Plunger, Fig. 1913.	Price Lower Valve, Fig. 1914.	Price per Set.
1½-inch.	\$5.00	2.25	7.25	3¾-inch.	\$25.00	14.00	39.00
1¾ " "	6.25	2.75	9.00	4¼ " "	30.00	18.00	48.00
2¼ " "	7.00	5.25	12.25	4¾ " "	42.00	22.00	64.00
2¾ " "	8.50	8.00	16.75	5¼ " "	46.00	26.00	72.00
3¼ " "	15.00	12.50	27.50				

Order by this Catalogue Figure Number, stating size wanted.



# CHAPMAN TUBULAR WELL VALVES.

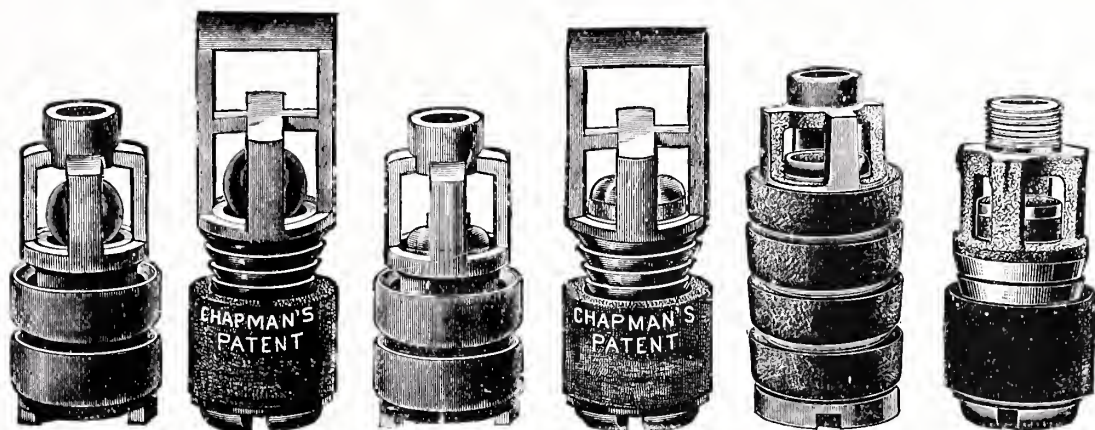


Fig. 1915.

Fig. 1916.

Fig. 1917.

Fig. 1918.

Fig. 1919.

Fig. 1920.

Figs. 1915, 1916.	Per set.	2-inch,	\$6.00	2½-inch,	9.00	3-inch,	12.00
" 1917, 1918.	"	"	6.00	"	9.00	"	12.00
" 1919, 1920.	"	"	7.00	"		"	

STRAIGHT TUBULAR  
WELL VALVE,  
WITH  
OVAL VALVE SEAT.



Fig. 1921.



Fig. 1922.

STRAIGHT CHECK VALVE, WITH DOG C'PL'G.  
Can be located at any point in the Pipe.



Fig. 1923.

STRAIGHT TUBULAR WELL  
VALVE, WITH TAPER  
VALVE SEAT.



Fig. 1924.



Fig. 1925.

BREMER  
TUBULAR  
WELL VALVE.

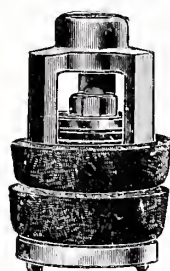


Fig. 1926.



Fig. 1927.

Figs. 1921, 1922.	Per set, 2-in.	\$6.00
" 1921, 1922.	" " 2½ "	9.00
" 1921, 1922.	" " 3 "	12.00
" 1923, 2-in.	" " " "	3.50
" 1923, 2½ "	" " " "	5.00
" 1923, 3 "	" " " "	6.50
" 1924, 1925.	Per set, 2-in.	6.00
" 1924, 1925.	" " 2½ "	9.00
" 1924, 1925.	" " 3 "	12.00
" 1926, 1927.	" " 2 "	6.00
" 1926, 1927.	" " 2½ "	9.00
" 1926, 1927.	" " 3 "	12.00
" 1928, 1929.	" " 2 "	3.50
" 1928, 1929.	" " 2½ "	6.00
" 1928, 1929.	" " 3 "	10.00

Order by this Catalogue Figure  
Number, stating size wanted.

MARCY  
TUBULAR  
WELL VALVE.



Fig. 1928.



Fig. 1929.



# ARTESIAN WELLS.

Before proceeding to illustrate the extensive line of these goods which we offer to our friends as the latest and most improved of their kind, we think a few remarks regarding the advantages of pure water would not be out of place.

That water is necessary to life needs no proof ; but that good water is necessary to the health of man and beast seems to be doubted by many well-meaning people. When we see a man making a hole or pond in the corner of his field for his cattle to drink from, or making a cesspool (dug well) beside his house for himself and family to drink from, one might suppose that pure, wholesome water was no consideration, and was not desired. When we see mill and factory operators paying heavy water taxes to obtain an uncertain supply of pond, creek or river water for their employees to drink, and buying large quantities of ice to make it at all palatable in warm weather, we might infer that they do not know the results (computed in sickness and doctors' bills) of what they are doing. When we see a village or town locating its "water works" on a creek or river, and taking its supply of drinking and cooking water from a stream which has been collecting and dissolving the refuse garbage, offal and sewerage from all the farms, factories, mills, refineries, slaughter-houses and sewers by which the stream flows, it might almost be inferred that the people had united to make public proof that "dirt is wholesome," or that "what you don't see don't hurt you." Judging from examples like these, which can be seen any day, it might indeed seem that people do not know the health-destroying and fever-producing properties of the impure water which they use ; but the fact is that people have been driven to these expedients for lack of a systematic method of getting at Nature's exhaustless and everywhere boundless supply.

The city of Brooklyn, N. Y., with a population of more than half a million people, and using many million gallons of water per day, gets something more than one-half its supply from Tubular Wells, placed in gangs and pumped by steam, and has better water than any city of its size in the United States. The city of Pekin, Ill., gets its entire supply from ten six-inch wells, put down in a radius of sixty feet, close to the "stand pipe," and pumped with one engine. The water is soft, perfectly pure, and of even temperature, summer and winter. The sinking of the wells did not cost as much as the laying of a main from the river to the stand pipe. We venture to assert that there are not ten cities in the country that cannot be easily supplied with water taken directly from Nature's purified sources, and at a cost of less than that now incurred in raising filthy creek and river water.

The experience of the city of Brooklyn has been often repeated, as, for instance, the cities of Malden, Hyde Park and Lynn, Mass., secure a portion, if not all, of their water supply from artesian wells. It might be interesting to some of our readers to learn regarding the deepest of these artesian wells, and we name a few of the most noted:

WELLS.	Finished.	Depth in Feet.	Capacity, Gallons per Day.
Grenelle, Paris . . . . .	1841	1792	500,000
Passey, France . . . . .	1860	2000	5,660,000
Kissingen, Bavaria . . . . .	1850	1878½	1,077,000
Spernberg, Prussia . . . . .	. .	4170	. . . .
Belcher's Sugar-house, St. Louis . . . . .	. .	2199	108,000
Insane Asylum, St. Louis . . . . .	. .	3843½	. . . .
Louisville, Kentucky . . . . .	. .	2066	330,000
Columbus, Ohio . . . . .	. .	2775½	. . . .
United States Mint, Philadelphia . . . . .	. .	458	90,000
City of Waukegan, Illinois . . . . .	1875	1110	300,000
Boston, Massachusetts . . . . .	. .	1860	. . . .
Pittsfield, " Put down by ns. . . . .	1890	850	288,000
Mansfield, Connecticut, " . . . .	1891	850	144,000
Manchester, New Hampshire, " . . . .	1891	590	100,000

# THE KEYSTONE PORTABLE STEAM DRILLER.

MADE IN EIGHT SIZES.

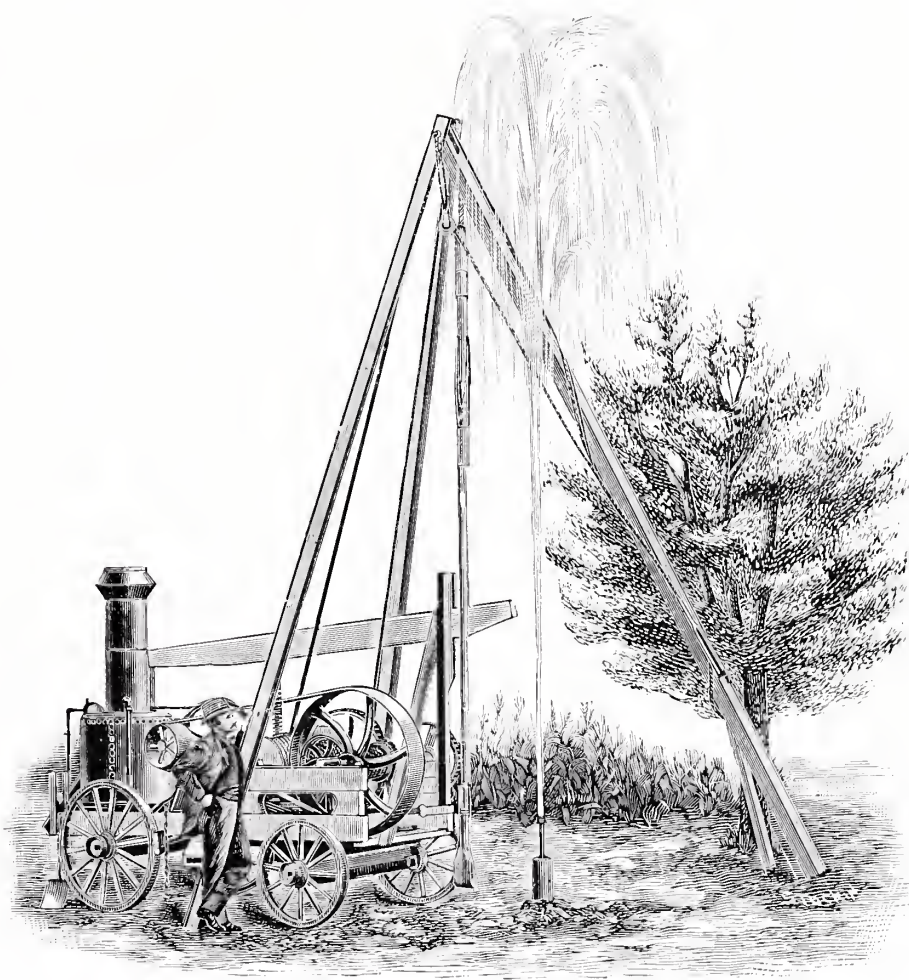


Fig. 1930.

Fig. 1930 shows the Keystone Portable Driller No. 2, Single Beam, set up for work. This illustration is also a correct representation of the Nos. 1,  $1\frac{1}{2}$  and 3 machines, except that the manufacturers have discarded the 3-pole derrick and now use a lighter and stronger form.

**FLOWING WELLS**—The above cut was made from a photograph which shows a flowing well. These are very often secured in some sections of the country, principally in the mountain regions of the West, and the east coast of Florida. In no section are these wells so common as in Florida, and in no section could their origin seem more of a mystery. The wells at St. Augustine, Fla., are the most noted of any in the country, supplying, as they do, water for city use, hydrants for fire protection, hotels for domestic use, and fountains for ornamental purposes.

# THE KEYSTONE PORTABLE STEAM DRILLER—CONTINUED.

As is well known, the entire state of Florida is level, or nearly so, and any elevation of seventy-five feet is quite unusual. When these facts are considered, the flowing wells seem all the more wonderful. Some scientists explain them as having their origin or "head" in the mountain regions of the Northern states.

The natural causes which produce flowing wells are of about four kinds.

1st. The presence of gas (such as carbonic acid gas) in the water, which, when set free, expands and makes the water flow out in much the same manner as a bottle of soda water will overflow when uncorked. The water did not flow until it was agitated. The water from such a well is called "mineral water" and is often very valuable for its medicinal properties.

2d. The bed or stratum containing the water may be on an incline and may be overlaid by a thick and impervious bed or "blanket" of tough clay or slate like a water pipe laid down a hillside. The water-bearing stratum may extend for miles back to where the tough overlaying clay ceases, and is there filled with water from the rainfall or from streams. When the stratum is tapped at a lower level the water flows out. It is from this cause that flowing water is found all along the James River; at Yankton, S. D.; Denver, Col.; Belle Plain, Iowa; Logan and Hardin Counties, Ohio; Mobile, Ala.; San Antonio, Tex., and many other such places in Illinois, Indiana and Michigan, etc.

3d. Water may be caused to flow by the presence of natural gas under great pressure in balloon-shaped cavities and overlaid with a blanket of impervious clay or slate. It is partly owing to this cause that oil wells usually flow when first "struck." Gas has been found in these cavities ("anticlinals") at a pressure of more than 900 lbs. to the square inch, or enough to throw the water out of a well 2,000 to 3,000 feet deep.

4th. Along the coast where there is a great depth of sand, say 300 to 500 feet, if a tube be driven down to where the water has been practically freed from salt by chemical filtration, the filtered water being freed from the salt has less specific gravity than the water nearer the surface. The presence also of Sulphureted Hydrogen Gas in such water tends to make it lighter; and when the pipe has been driven to a sufficient depth, ranging from 300 to 600 feet, and once cleared of the salt water, the well flows. The water from the bottom of such a well, if weighed, will be found to have much less specific gravity than the water taken from the strata through which the well was sunk, and the water will rise to a height above water level in that vicinity proportioned to the difference in specific gravity between the water at the bottom of the well and at other points above.

It is from this cause that flowing water is found in such great quantities at St. Augustine, Tampa and Jacksonville, Fla.; Brunswick, Ga.; Norfolk, Va.; Beach Haven and other points on the Jersey coast. Whenever porous sand is found along the seacoast to a depth of 300 to 500 feet, a flowing well can usually be made. The way to find out whether or not a well in your vicinity will flow is to drill it and case it. Drilled wells will often flow where "dug wells" will not, for the reason that a drilled well may be cased through the open surface strata, where, otherwise, the water would flow away. In very many places Flowing Wells are used for water power to drive grist-mills, sawmills and for farm uses, a turbine wheel being connected to the casing.

The wells at St. Augustine vary from 200 to 600 feet in depth, and yield, with a pressure of 20 to 40 pounds, from 800 gallons to 3,000 gallons per minute. The water is confined below a layer of rock which is only necessary to penetrate to secure a flowing well.



# THE KEYSTONE PORTABLE STEAM DRILLER—CONTINUED.

## SINGLE BEAM.

**WAGON**—Iron axles 2½-inch, locust hubs, bent rims, 3-inch tire, sills 3x8 white oak. Has brake and side lever, tongue, double trees and stay chains. Has rain-proof tool box under the bed.

**BOILER**—34x54-inch shell, heads ¾-inch flange steel, shell and fire-box ½-in. 60,000 T. S. steel, 5-foot stack, grate bars for either wood or coal, 2 hand-holes and blow-off cock, inspirator and 10-foot hose, 3 gauge cocks, pop safety valve, whistle, glass water gauge, steam gauge, check valve and drip for draining pipes in cold weather. An extra throttle at boiler for shutting steam out of all pipes in cold weather.

**ENGINE**—Centre crank, 8 H. P. cylinder 6x8, splitting steam packing, Link reverse, brass stuffing boxes and guides, throttle and reverse levers run to driller's hand, sight feed lubricator, I. X. L. oil cups and pet cocks. Engine has forged crank shaft, turned balance wheel on one side and 8x18 driving pulley on the other. 8-inch 6-ply belt.

The fan is run by belt from the balance wheel.

**DRILLING MACHINERY**—Main shaft 2½-inch, band wheel 8x48, crank wheel 24-inch, friction sand line reel, geared drill rope reel. Walking-beam has maximum stroke of 24 inches, with 3 shorter ones. The "spudding in" is done by means of pulleys bracketed to side of walking-beam (not shown in cut). The Derrick is hinged to top of guide post, has one brace and two guy lines. Folds down over the walking-beam in moving.

It is not equipped with pipe driving tools unless ordered extra.

This machine is equipped for drilling 5 to 6-inch holes 250 feet. (Wells 500 and 600 feet have been drilled with it.) Weight, with all tools named on page 656, about 6,000 lbs. Price, F. O. B. cars at Factory, including all the tools and equipments named, \$1,200.

Any of the tools not needed may be left off, and the price of such deducted. A liberal reduction if we are not required to send an operator to give instruction, set and test the machine.

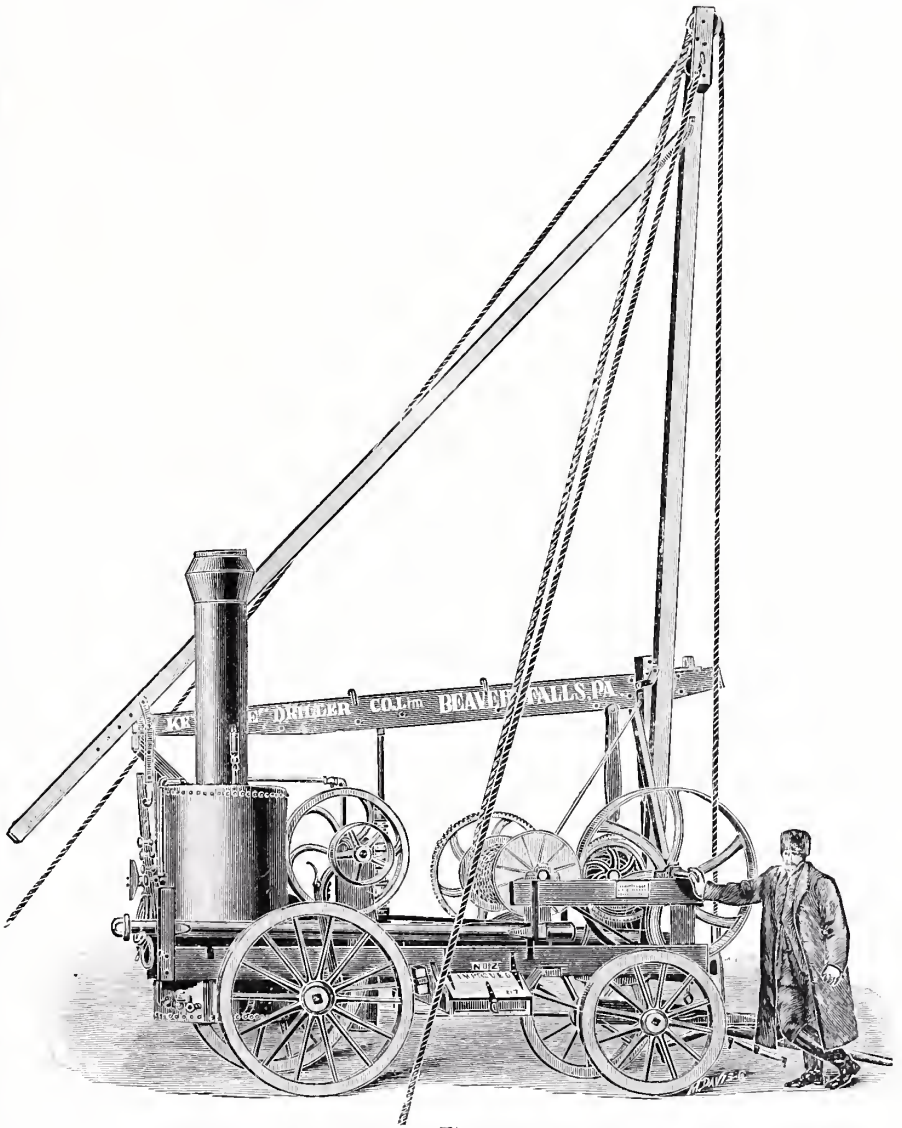


Fig. 1931.





# THE KEYSTONE DOUBLE BEAM No. 2 MACHINE.

**WAGON**—Iron axles 2½-inch, locust hubs, bent rims, 3-inch tires, sills 3x8 seasoned white oak. Has brake and side lever, tongue, double trees and stay chains. Rain-proof tool box under the sills.

**BOILER**—34 x 54-inch shell, heads ⅝ flange steel, shell and fire-box ¾-inch, of 60,000 T. S. steel, 5-foot stack, grate bars for either wood or coal, 2 hand-holes and blow-off cock, inspirator and 10-foot hose, 3 gauge cocks, pop safety valve set at 80 lbs., whistle, glass water gauge, steam gauge, check valve and drips for draining pipes in cold weather.

**THE ENGINE** is centre crank, 8 H.P., cylinder 6 x 8 inches, split-ring steam packing, Link reverse, brass stuffing boxes and guides. The throttle and reverse levers all run to driller's hand. Sight feed lubricator, I. X. L. oil cups and pet cocks. The engine has forged crank, turned balance wheel on one side and 8x16 driving pulley on the other; carries an 8-inch 6-ply belt. The fan is run by belt from the balance wheel.

**DRILLING MACHINERY**—Main shaft 2½-inch, with crank on one end and crank wheel on the other. Band wheel 8x48-inch, maximum throw of cranks 24 inches with 3 shorter ones, brass boxes on pitman crank, friction sand reel gear, geared drill rope reel. Walking-beams are made of seasoned oak.

**THE DERRICK** is formed of a ladder-shaped mast, hinged to top of guide posts, and 2 braces; swings 24 feet. The derrick folds down over the boiler in moving. The connecting rods do not have to be removed from the crank pins for drawing tools when drilling with temper screw.

This machine is a favorite among drillers. It is equipped regularly for making Wells 5½-inch in diameter and 300 feet deep. Can be used on 8-inch wells by adding 8-inch bits, and on 500-foot wells by adding cable. Weighs about 6,500 lbs. Price F. O. B. the cars at factory, including all the tools and equipment named on page 658, \$1,270. Any of the tools not needed may be left off and the price deducted. A liberal reduction if we are not required to send an operator to give instructions, set up and test the machine.

The cut shows the machine rigged for "spudding in" the tools. The crown pulley is 18 inches in diameter, turned and polished.

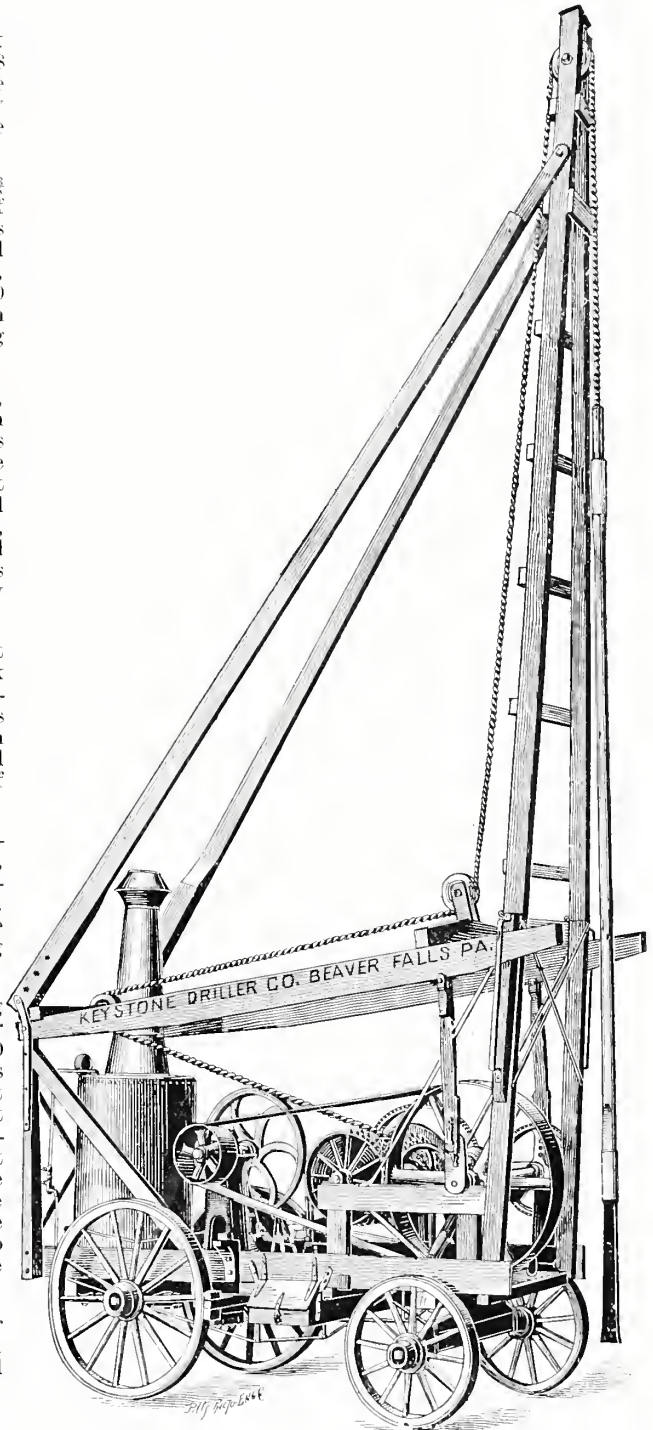


Fig. 1932.

# EQUIPMENT.

## FOR SIZE No. 2, DOUBLE BEAM.

### DRILLING TOOLS.

No. 1.	One 7½-inch Spudding Bit . . . . .	\$20.00
" 2.	Two 5½-inch Fluted Rock Bits . . . . . Each, \$25.00.	50.00
" 3.	One 3½-inch by 10-foot Stem . . . . .	25.00
" 4.	One set 5½-inch Steel Jars . . . . .	55.00
" 5.	Five Thread Protectors for Pins . . . . . Each, 30 cents.	1.50
" 6.	Three Thread Protectors for Boxes . . . . . " 20 "	.60
" 7.	One Temper Screw, Keystone patent . . . . .	15.00
" 8.	One Rope Socket for 1½-inch cable . . . . .	9.00
" 9.	Two Heavy Tool Wrenches . . . . . Each, \$7.00.	14.00
" 10.	One Steel-pointed Wrench Bar . . . . .	1.50
" 11.	One Round Bit Gauge, turned . . . . .	.75
" 12.	One Iron Plated Tool Tightener . . . . .	3.00
" 14.	One 4-inch by 5-foot Sand Pump . . . . .	7.50

### PIPE DRIVING TOOLS.

No. 16.	One Driving Cap to fit outside 5½-inch coupling . . . . .	\$4.00
" 17.	One pair Driving Clamps, 2½-inch square, iron . . . . .	4.00
" 18.	One pair Heavy Chain Tongs for 6-inch pipe . . . . .	8.00

### TOOL DRESSING OUTFIT.

No. 19.	One Fan and Belt, driven by engine . . . . .	\$8.00	No. 23.	One Rack and Anvil Billet for dressing bit . . . . .	\$3.50
" 20.	One Tuyere Iron . . . . .	.65	" 24.	One Smithing Hammer . . . . .	1.00
" 21.	One 18-foot Blast Hose . . . . .	1.00	" 25.	One Sledge and Handle . . . . .	2.00

### PUMP SETTING TOOLS.

No. 26.	One pair ¼-inch Gas Tongs . . . . .	\$0.70
" 27.	One " 1¼ " " " . . . . .	1.50
" 28.	One Combination Pipe and Monkey Wrench, 15-inch . . . . .	3.00
" 29.	One Brace, Bit and Screw Driver . . . . .	.75
" 30.	One Collet, Die and Tap, ⅜-inch, for threading sucker rods . . . . .	3.00
" 31.	One Compass Saw . . . . .	.50
" 32.	One Hand Saw . . . . .	1.00
" 33.	One Hand Axe . . . . .	1.00

### ROPES AND CABLE.

No. 34.	300 feet 1½-inch Manilla H. L. Drilling Cable . . . . . Per foot, 10 cents.	\$30.00
" 35.	300 " ⅝ " " " " Sand Line . . . . . " " 2 "	6.00

### ODD TOOLS AND PARTS.

No. 37.	One 6-inch Monkey Wrench . . . . .	\$0.50	No. 45.	One Shackle for Rear Spudding Pulley . . . . .	\$1.75
" 38.	One Spanner Wrench . . . . .	.20	" 46.	One Shackle for Front Spudding Pulley . . . . .	1.75
" 39.	One S Wrench . . . . .	.30	" 47.	One 18-in. Turn'd Crown Pulley . . . . .	3.25
" 40.	One Spring Bottom Oiler . . . . .	.25	" 48.	One Sand Pump Pulley . . . . .	1.00
" 41.	One Funnel for Filling Boiler . . . . .	.50	" 49.	Two sets of 12-in. Spiral Springs . . . . . Per set of 4, \$5.20.	10.40
" 42.	One Shovel . . . . .	.75			.25
" 44.	Two Cable Sheaves for Spudding attachment, Each, \$1.75.	3.50			
" 50.	One Cold Chisel . . . . .				

### BOILER FIXTURES.

No. 53.	One Whistle . . . . .				\$2.50
" 54.	One Glass Water Gauge, with one extra glass . . . . .				3.00
" 56.	One Size A Pemberthy Injector . . . . .				10.00
" 57.	Two $\frac{1}{2}$ -inch Globe Valves, for Injector. . . . .	Each, \$1.00.	Pipe and Fittings, 50 cents.		2.50
" 58.	One Shut-off Globe Valve, for Injector, $\frac{1}{2}$ -inch . . . . .				1.25
" 59.	One 10-foot Suction Hose, $\frac{3}{4}$ -inch, and Couplings. . . . .				2.50
" 60.	One Check Valve, $\frac{1}{2}$ -inch, for Injector. . . . .				.80
" 61.	Three Compression Gauge Cocks . . . . .			Each, \$1.00.	3.00
" 62.	One Steam Gauge . . . . .	4.00	No. 64.	One 1-inch Blow-off Cock . . . . .	1.25
" 63.	One 1-inch Throttle . . . . .	1.60	" 65.	One Pop Safety Valve . . . . .	4.50

### ENGINE FITTINGS.

No. 66.	Three Oil Cups, ¾-inch . . . . . Each, 35 cents.	\$1.05
" 67.	One I. X. L. Oil Cup, with L and Nipple for Cross Head . . . . .	.60
" 68.	Three I. X. L. Oil Cups for Wrist and Slides . . . . . Each, 50 cents.	1.50
" 69.	One Sight Feed Lubricator, ¼-pnt . . . . .	4.00
" 70.	One Driving Belt, 6-ply, 8 inches wide, 23 feet long . . . . . Per foot, 65 cents.	14.95

These machines are shipped on Gondola cars, with drop ends. All the loose parts, brass fittings of boiler and engine, are removed and boxed. Otherwise the machines are practically set up when shipped, and if the directions given are followed, any person of ordinary intelligence can operate them. We will give special instructions when special work, such as coal testing, etc., etc., is to be done.



# THE KEYSTONE DRILLER.

## SIZE No. 3, DOUBLE BEAM.

**WAGON** — Iron axles  $2\frac{1}{2}$ -inch, locust hubs, bent rims, 3-inch tires, sills 3 x 8, seasoned oak. Brake, tongue, double trees, and stay chains. Rain-proof tool box under sills.

**BOILER** — 34 x 60-inch shell, heads  $\frac{3}{8}$  flange steel, shell and fire-box of  $\frac{1}{4}$ -inch 60,000 T. S. steel, 5-foot stack, grate bars for either wood or coal, 2 hand-holes and blow-off cock. Inspirator and 10-foot suction hose, 3 gauge cocks, pop safety valve set at 80 lbs., whistle, glass water gauge, steam gauge, check valve and drips for draining pipes in frosty weather.

**THE ENGINE** is centre crank, 8-H. P., steam cylinder, 6 x 8, split-ring steam packing, Link reverse, brass stuffing boxes and slides. The throttle and reverse levers all run to driller's hand. Sight feed lubricator, I. X. L. oil cups and pet cocks, forged crank, turned balance wheel, to which an extra balance rim may be attached for deep drilling. Driving pulley, 8 x 16 inches, 8-inch 6-ply "Gandy"

belt. The fan is driven from the balance wheel.

**THE DRILLING MACHINERY** — Main shaft,  $2\frac{1}{2}$ -inch, with crank on one end and crank wheel on the other. Band wheel, 8 x 48 inches, 4 lengths of stroke on beam, friction geared sand reel, with back brake, drill rope reel, cog geared or friction geared, to suit purchaser. The walking-beams and all the timbers, except the derrick, are of seasoned oak. The derrick is hinged, and swings 26 to 28 feet. Crown pulley is 18 inches in diameter and turned. Derrick folds down over boiler in moving. This machine is also made with traction.

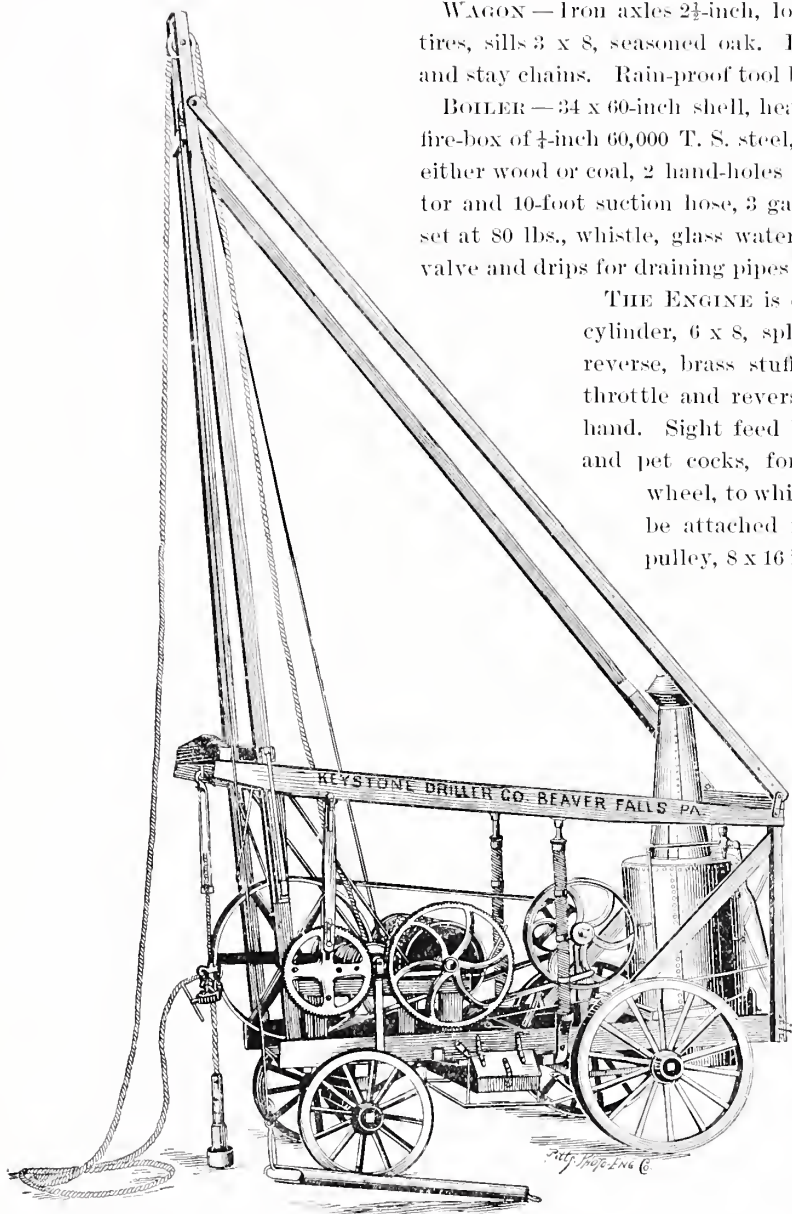


Fig. 1933.

This machine is the same in general make-up as the preceding one. It is equipped regularly for making Wells  $5\frac{1}{2}$ -inch diameter and 500 feet deep.

It can be used on 8-inch wells, by adding 8-inch bits, instead of  $5\frac{1}{2}$ . Weight, about 7,200. Price F. O. B. the cars at factory, including all the tools and equipment named on page 660, \$1,345.

Any of the parts of the equipment not wanted may be left off and the price deducted. Also a liberal reduction if we are not required to send an operator to give instructions, set up and test the machine. The cut shows the machine using the temper screw.



# EQUIPMENT.

## FOR SIZE No. 3, DOUBLE BEAM.

### DRILLING TOOLS.

No. 1.	One $7\frac{1}{2}$ -inch Spudding Bit . . . . .	\$20.00
" 2.	Two $5\frac{1}{2}$ -inch Fluted Rock Bits . . . . . Each, \$25.00.	50.00
" 3.	One $3\frac{1}{2}$ -inch by 12-foot Stem . . . . .	32.00
" 4.	One set $5\frac{1}{2}$ Steel Jars . . . . .	55.00
" 5.	Five Thread Protectors for Pins . . . . . Each, 30 cents.	1.50
" 6.	Three Thread Protectors for Boxes . . . . . " 20 "	.60
" 7.	One Temper Screw, Keystone patent . . . . .	15.00
" 8.	One Rope Socket for $1\frac{1}{2}$ -inch cable . . . . .	9.00
" 9.	Two Heavy Tool Wrenches . . . . . Each, \$7.00.	14.00
" 10.	One Steel-pointed Wrench Bar . . . . .	1.50
" 11.	One Round Bit Gauge, turned . . . . .	.75
" 12.	One Iron Plated Tool Tightener . . . . .	3.00
" 14.	One 4-inch by 5-foot Sand Pump . . . . .	7.50
" 15.	One $3\frac{1}{2}$ -inch by 4-foot Sinker Bar . . . . .	20.00

### PIPE DRIVING TOOLS.

No. 16.	One Driving Cap to fit outside $5\frac{1}{2}$ -inch coupling . . . . .	\$4.00
" 17.	One Pair Driving Clamps, $2\frac{1}{2}$ -inch square, iron . . . . .	4.00
" 18.	One Pair Heavy Chain Tongs for 6-inch pipe . . . . .	8.00

### TOOL DRESSING OUTFIT.

No. 19.	One Fan and Belt, (Driven by Engine) . . . . . \$8.00	No. 23.	One Rack and Anvil Billet for dressing bit . . . . .	\$3.50
" 20.	One Tuyere Iron . . . . . .65	" 24.	One Smithing Hammer . . . . .	1.00
" 21.	One 18-foot Blast Hose . . . . . 1.00	" 25.	One Sledge and Handle . . . . .	2.00

### PUMP SETTING TOOLS.

No. 26.	One Pair $\frac{1}{2}$ -inch Gas Tongs . . . . .	\$0.70
" 27.	One Pair $1\frac{1}{2}$ -inch Gas Tongs . . . . .	1.50
" 28.	One Combination Pipe and Monkey Wrench, 15-inch . . . . .	3.00
" 29.	One Brace, Bit and Screw Driver . . . . .	.70
" 30.	One Collet, Die and Tap, $\frac{3}{4}$ -inch, for threading sucker rods . . . . .	3.00
" 31.	One Compass Saw . . . . .	.50
" 32.	One Hand Saw . . . . .	1.00
" 33.	One Hand Axe . . . . .	1.05

### ROPES AND CABLE.

No. 34.	500 feet $1\frac{1}{2}$ -inch Manilla H. L. Drilling Cable . . . . . Per foot, 10 cents.	\$50.00
" 35.	500 " $\frac{3}{4}$ " " " Sand Line . . . . . " 2 "	10.00

### ODD TOOLS AND PARTS.

No. 37.	One 6-inch Monkey Wrench . . . . .	\$0.50
" 38.	One Spanner Wrench . . . . .	.20
" 39.	One S Wrench . . . . .	.30
" 40.	One Spring Bottom Oiler . . . . .	.25
" 41.	One Funnel for Filling Boiler . . . . .	.50
" 42.	One Shovel . . . . .	.75
" 44.	Two Cable Sheaves for Spudding Attachment . . . . . Each, \$1.75.	3.50
" 45.	One Shackle for rear Spudding Pulley . . . . .	1.75
" 46.	One Shackle for front Spudding Pulley . . . . .	1.75
" 47.	One 18-inch Turned Crown Pulley . . . . .	3.25
" 48.	One Sand Pump Pulley . . . . .	1.00
" 49.	Two sets of 12-inch Spiral Springs . . . . . Per set of four, \$5.20.	10.40
" 50.	One Cold Chisel . . . . .	.25

### BOILER FIXTURES.

No. 53.	One Whistle . . . . .	\$2.50
" 54.	One Glass Water Gauge, with one extra glass . . . . .	3.00
" 56.	One Size A Pemberthy Injector . . . . .	10.00
" 57.	Two $\frac{1}{2}$ -inch Globe Valves for Injector . . . . . Each, \$1.00; Pipe and Fittings, 50 cents.	2.50
" 58.	One Shut-off Globe Valve for Injector, $\frac{1}{2}$ -inch . . . . .	1.25
" 59.	One 10-foot Suction Hose, $\frac{3}{4}$ -inch, and Couplings . . . . .	2.50
" 60.	One Check Valve, $\frac{1}{2}$ -inch, for Injector . . . . .	.80
" 61.	Three Compression Gauge Cocks . . . . . Each, \$1.00.	3.00
" 62.	One Steam Gauge . . . . .	4.00
" 63.	One 1-inch Throttle . . . . .	1.60
" 64.	One 1-inch Blow-off Cock . . . . .	1.25
" 65.	One Pop Safety Valve . . . . .	4.50

### ENGINE FITTINGS.

No. 66.	Three Oil Cups, $\frac{3}{4}$ -inch . . . . . Each, 35 cents.	\$1.05
" 67.	One I. X. L. Oil Cup with L and Nipple for Cross Head . . . . .	.60
" 68.	Three I. X. L. Oil Cups for Wrist and Slides . . . . . Each, 50 cents.	1.50
" 69.	One Sight Feed Lubricator, $\frac{1}{2}$ -pint . . . . .	4.00
" 70.	One Driving Belt, 6-ply, 8 inches wide, 23 feet long . . . . . Per foot, 65 cents.	14.95

# DRILLING TOOLS FOR WELL DRILLERS.



Fig. 1934.

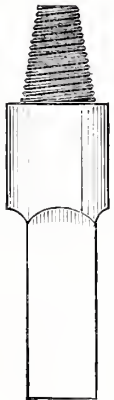


Fig. 1943.



Fig. 1935. Fig. 1936.

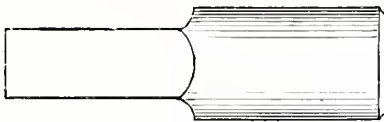


Fig. 1944.



Fig. 1937.



Fig. 1938.



Fig. 1939.

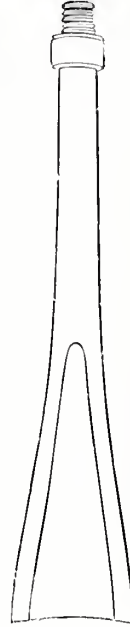


Fig. 1940.

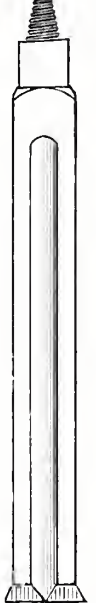


Fig. 1941.

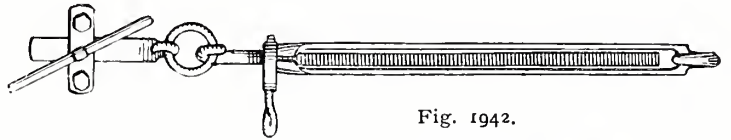


Fig. 1942.

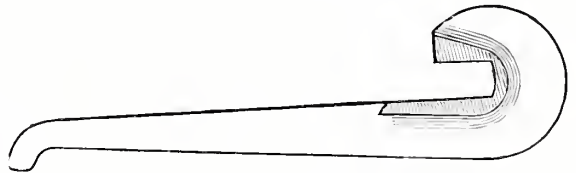


Fig. 1945.

- Fig. 1934. Rope Socket for  $1\frac{1}{2}$  and  $1\frac{3}{8}$  Cable.  
 " 1935. Jars.  
 " 1936. Sinker Bar or Stem.  
 " 1937. Spudding Bit for starting the well.  
 " 1938. Straight or "Paddle" Bit for drilling  
     in rock which has open crevices.  
 " 1939. "Fluted" or Club Bit.

- Fig. 1940. Reamer.  
 " 1941. Star Bit.  
 " 1942. Temper Screws, Keystone patent.  
 " 1943. Steel Pin, straight or taper.  
 " 1944. Steel Box, straight or taper.  
 " 1945. Tool Wrench.

Prices quoted on application.

Order by this Catalogue Figure Number, stating size wanted.

# DRILLING TOOLS FOR WELL DRILLERS.

## CONTINUED.

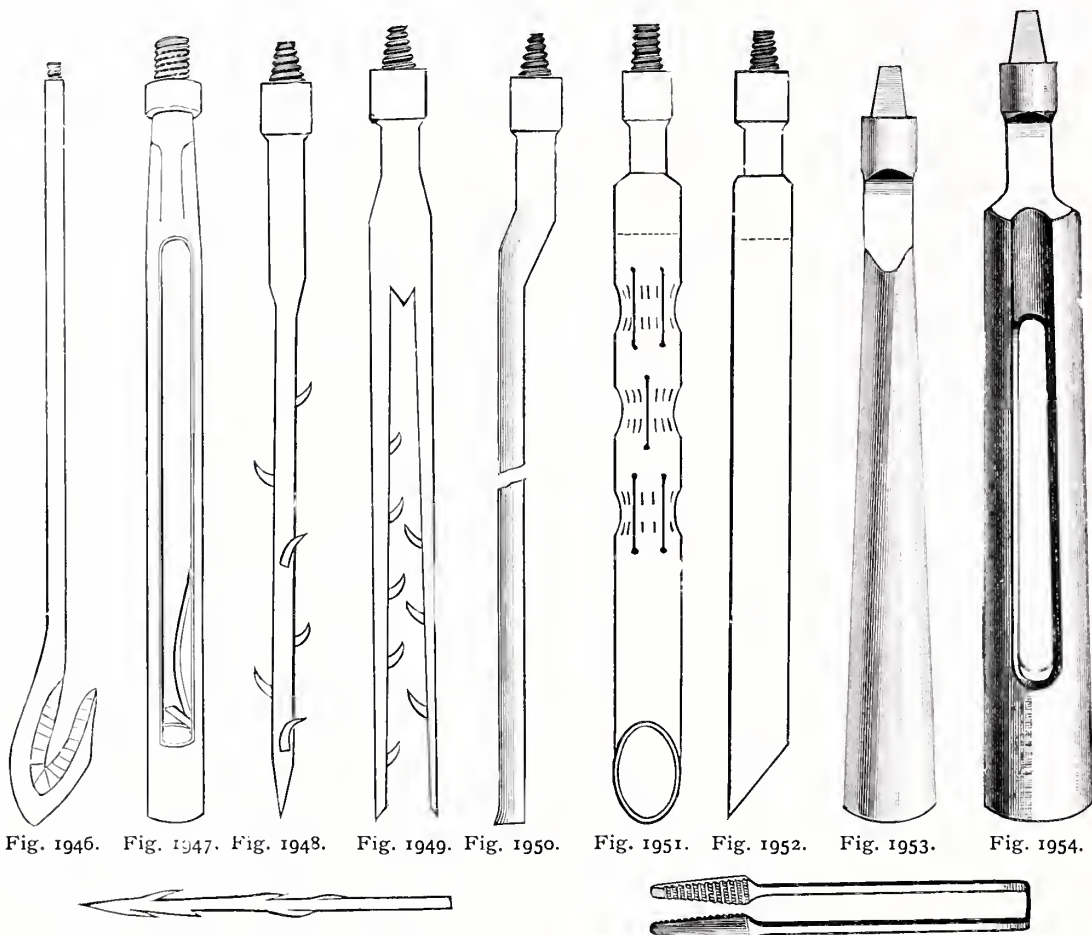


Fig. 1946. Fig. 1947. Fig. 1948. Fig. 1949. Fig. 1950. Fig. 1951. Fig. 1952. Fig. 1953. Fig. 1954.

Fig. 1955.

Fig. 1956.

The above cuts illustrate some of the more common Fishing Tools sometimes needed to recover lost tools from a well.

Fig. 1946. Rope Knife. Used on 1-inch gas pipe for cutting off drill cable.

" 1947. Valve Rope Knife. It is used when for any reason it is desired to cut the cable off close to the rope socket.

" 1948. Rope Spear with pin. Its use is the same as Fig. 1955, except that it is attached to drilling tool instead of gas pipe.

" 1949. Double Rope Spear with pin.

" 1950. "Spud." For cutting around a bit or tool which has become lost in the well, to loosen it up.

" 1951. Corrugated Friction Socket. For catching hold of collar or set of jars in a well which is too small to allow a slip socket to be used. In ordering, state size of tool to be caught.

Fig. 1952. Straight Friction Socket. Use same as Fig. 1951.

" 1953. Horn Socket. For driving over an iron tool of uncertain size. It is tapered from bottom to top, and is open at the side for a part of the distance so that it will spring and hug the tool to be caught.

" 1954. Slip Socket. This is the most powerful fishing tool made. It is used to catch hold of a rope socket or the round iron of the stem. If it once takes hold it will never let go. It should always be used with a good set of Jars above it, and a good heavy "stem" above the jars.

" 1955. Rope Spear. Used with 1-inch gas pipe for fishing out a lost cable or sand line.

" 1956. Slips for Fig. 1953.

In ordering, state size of hole and diameter of tool.  
Order by this Catalogue Figure Number, stating size wanted.

# STATIONARY STEEL BOILERS AND DETACHED ENGINES.

10, 12, 15, 20, 25, 30, 35, 40 AND 50 HORSE-POWER.

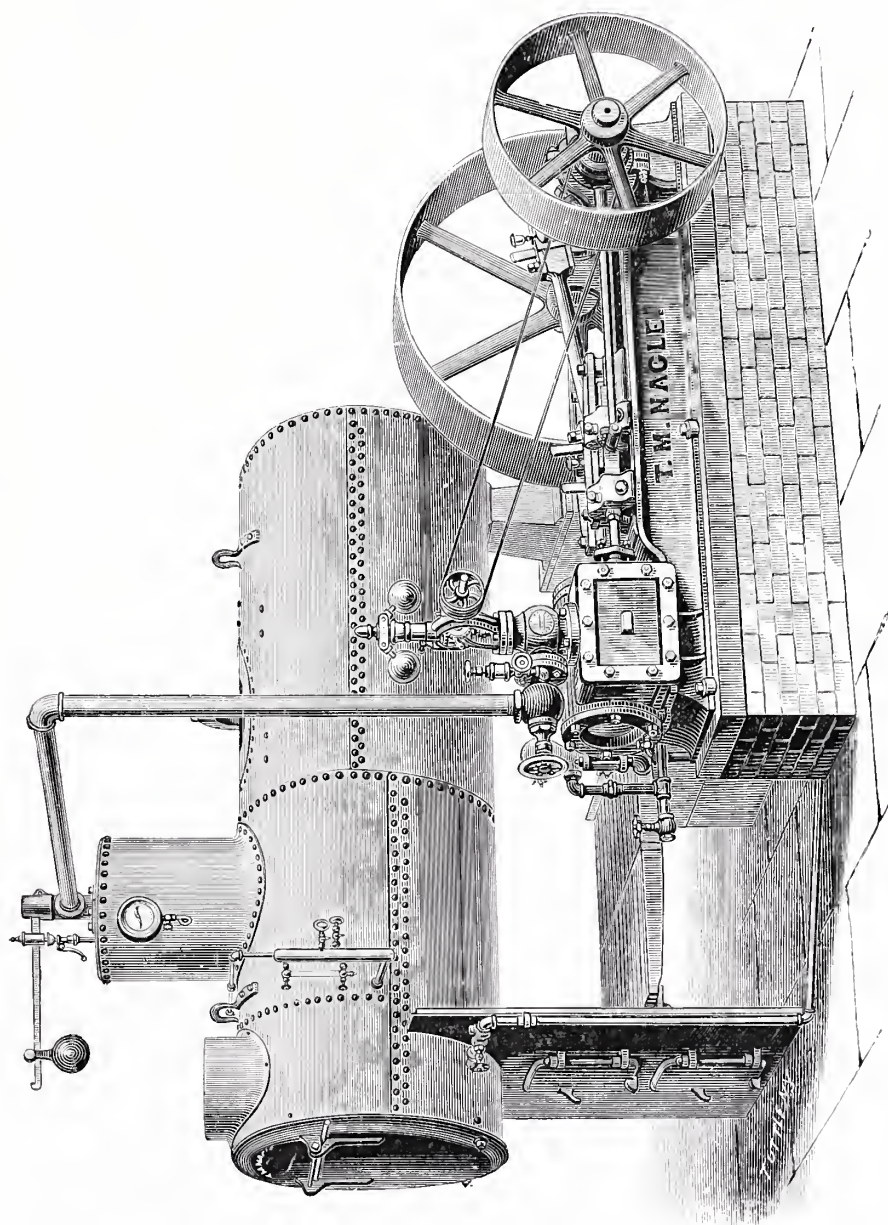


Fig. 1957.



# STATIONARY STEEL BOILERS AND DETACHED ENGINES—CONTINUED.

NUMBER . . . . .	1	2	3	4	5
Horse-Power . . . . .	10	12	15	20	25
Diameter of Cylinder and Length of Stroke . In.	7 x 10	8 x 10	8 x 12	9 x 12	10 x 12
Ordinary Number of Revolutions . . . . .	180	180	150	150	150
Diameter of Pulleys . . . . . In.	20, 44	20, 44	22, 48	32, 48	32, 54
Face of Pulleys . . . . . "	10½, 10½	10½, 10½	10½, 12½	8½, 12½	8½, 12½
Diameter of Boiler . . . . . "	30	36	36	36	42
Length of Tubes . . . . . Feet.	8	7	8	10	8
Number of 3-inch Tubes . . . . .	20	28	28	30	40
Diameter of Smoke Stack . . . . . In.	14	16	16	16	20
Length of Smoke Stack . . . . . Feet.	28	24	28	35	28
Estimated Weight . . . . . Lbs.	4900	5600	6550	7600	8500
Price, complete, on board cars at Erie . . . . .	..	..	..	..	..

NUMBER . . . . .	6	7	8	9	10	11
Horse-Power . . . . .	25	30	35	40	40	50
Diam. of Cyl. and Length of Stroke, In.	10 x 12	10 x 15	11 x 15	12 x 16	12 x 16	14 x 16
Ordinary Number of Revolutions . . . . .	150	140	140	130	130	130
Diameter of Pulleys . . . . . In.	32, 54	36, 60	36, 60	36, 60	36, 60	36, 72
Face of Pulleys . . . . . "	8½, 12½	9½, 12½	9½, 12½	9½, 14½	9½, 14½	9½, 16½
Diameter of Boiler . . . . . "	42	44	44	44	48	54
Length of Tubes . . . . . Feet.	10	10	12	14	12	12
Number of 3-inch Tubes . . . . .	40	46	46	46	54	68
Diameter of Smoke Stack . . . . . In.	20	22	22	22	24	26
Length of Smoke Stack . . . . . Feet.	35	35	40	50	40	40
Estimated Weight . . . . . Lbs.	9200	11300	12100	13900	14700	18800
Price, complete, on board cars at Erie, . . . . .	..	..	..	..	..	..

Fig. 1957 represents Stationary Boiler and Detached Engine, 20, 25, 30, 35, 40 and 50 horse-power; the 10, 12 and 15 horse-power have similar Boilers, but the Engines are like the Detached Engine shown by engraving on page 666.

The above sizes of Pulleys will be found suitable for nearly all kinds of work, but will be changed if necessary.

The price includes the Engine complete, with Governor, Pump, Heater and Governor Belt, also all Boiler fixtures, viz.: Arch Front, Grates, Grate Bearers, Boiler Stand, Angle Bars for rear of Arch, Ash Door and Frame for rear end of Arch, Safety Valve, Steam Gauge, Water Gauge, Gauge Cocks, Whistle and Pipe, Blow-off, Check and Stop Valves, Smoke Stack and Guy Rods (four times the length of Stack); also Steam and Water Pipe, but Suction Pipe, Exhaust Pipe and Foundation Bolts are not included.

All Engines and Boilers are thoroughly tested with steam before leaving the works, and are complete, ready for work.

# HORIZONTAL TUBULAR BOILERS.

NUMBER . . . . .	1	2	3	3½	4	5	6	7
Horse-Power . . . . .	10	12	15	20	20	25	30	35
Diameter of Boiler . . . . . Inches.	30	36	36	36	42	42	44	44
Length of Flues . . . . . Feet.	8	7	8	10	8	10	10	12
Number of Flues, 3 inches in diameter . . . . .	20	28	28	30	40	40	46	46
Square Feet Heating Surface . . . . .	156	184	226	300	300	375	446	530
Diameter of Dome . . . . . Inches.	20	20	20	20	22	22	22	22
Height of Dome . . . . . "	22	22	22	22	24	24	24	24
Thickness of Steel in Shell of Boiler . . . . .	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	No. 3.	No. 3.	No. 3.	No. 3.
Thickness of Heads . . . . .	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Diameter of Smoke Stack . . . . . Inches.	14	16	16	16	20	20	22	22
Length of Smoke Stack . . . . . Feet.	28	24	28	35	28	35	35	40
Weight of Boiler and Britchen, about . . . . .	1950	2250	2500	3000	3350	3830	4200	4700
Weight of Boiler Fixtures, about . . . . .	1250	1500	1550	1800	2050	2290	2400	2600
Weight of Boiler and Fixtures, about . . . . .	3200	3750	4050	4800	5400	6120	6600	7300

NUMBER . . . . .	7½	8	9	10	11	12	13	14
Horse-Power . . . . .	40	40	50	60	70	80	90	100
Diameter of Boiler . . . . . Inches.	44	48	54	60	60	60	66	66
Length of Flues . . . . . Feet.	14	12	12	12	14	16	15	16
Number of Flues, 3 inches in diameter . . . . .	46	54	68	82	82	82	100	102
Square Feet Heating Surface . . . . .	602	600	760	900	1050	1200	1350	1475
Diameter of Dome . . . . . Inches.	22	26	30	32	32	32	36	36
Height of Dome . . . . . "	24	28	34	36	36	36	40	40
Thickness of Steel in Shell of Boiler . . . . .	No. 3.	$\frac{1}{2}$	$\frac{5}{16}$	No. 0	$\frac{11}{16}$	$\frac{11}{16}$	$\frac{3}{8}$	$\frac{3}{8}$
Thickness of Heads . . . . .	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
Diameter of Smoke Stack . . . . . Inches.	22	24	26	28	28	28	30	32
Length of Smoke Stack . . . . . Feet.	50	40	40	40	50	60	60	60
Weight of Boiler and Britchen, about . . . . .	5500	5900	7400	8300	11000	12000	13800	14600
Weight of Boiler Fixtures, about . . . . .	2925	3250	3450	3900	4000	4500	5000	5400
Weight of Boiler and Fixtures, about . . . . .	8425	9150	10850	12200	15000	16500	18800	20000

Boiler Fixtures comprise the Arch Front with Liners for Fire Brick, Grates, Grate Bearers, Boiler Stand, Rear Arch Bars, Ash Door and Frame for rear end of Arch, Safety Valve, Steam Gauge, Water Gauge, fitted with Stand Pipe, Gauge Cocks, Whistle and Pipe, Blow-off Valve, Check Valve, Stop Valve, Smoke Stack and Guy Wires (four times the length of Stack).

Grates for Boilers having 7 feet and 8 feet tubes are 36 inches long ; with 10 feet tubes 42 inches ; with 12 feet tubes 48 inches ; and with 14, 15 and 16 feet tubes 54 inches long, and the width of the Grates in all cases equals the diameter of the Boiler. Sawdust Grates will be substituted for regular Grates, when ordered, without extra charge.

All Smoke Stacks are made of No. 16 iron. If heavier is required, add, for No. 14, twenty-five per cent., and for No. 12, seventy-five per cent.

Boilers 42 inches and over in diameter, are made with Man-hole in Shell as shown in cut. Boilers less than 42 inches diameter, are made without Man-holes, except to order, at additional cost. All Boilers are made with Hand-hole in front head. Boilers 12 feet and longer, are made with Hand-hole in rear head unless otherwise ordered.

The Loops for hanging the Boiler, as shown in the cut, are not put on No. 7½ and smaller sizes unless ordered.

For specifications of larger Boilers send for Circular.

DETACHED CENTRE CRANK ENGINES.

6, 8, 9, 10, 12 AND 15 HORSE-POWER.

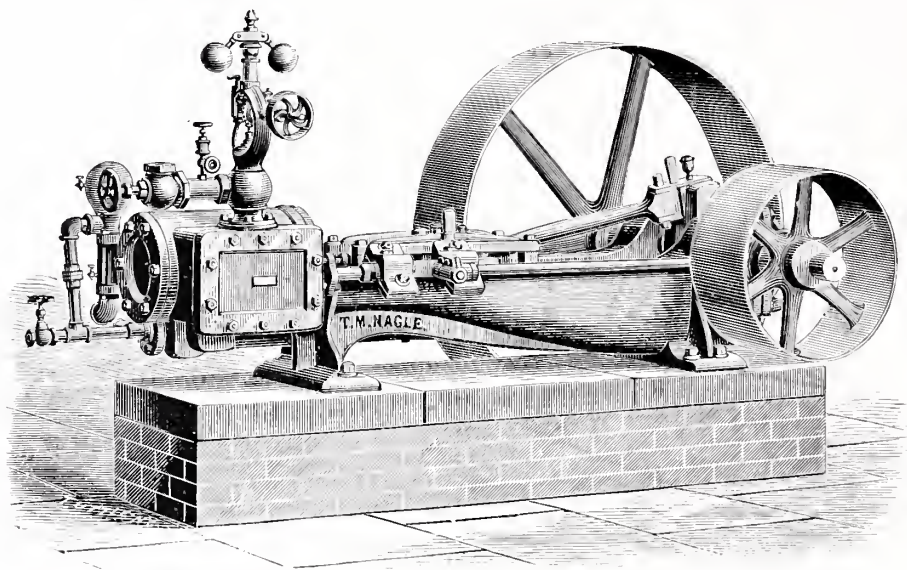


Fig. 1958.

NUMBER. . . . .	0	1	2	3	4	5
Horse-Power . . . . .	6	8	9	10	12	15
Diameter of Cylinder and Length of Stroke, In.	5 x 8	6 x 9	7 x 9	7 x 10	8 x 10	8 x 12
Ordinary Number of Revolutions . . . . .	220	200	200	180	180	150
Diameter of Pulleys . . . . . In.	14, 32	16, 36	16, 36	20, 44	20, 44	22, 48
Face of Pulleys . . . . . “	10½, 8½	10½, 9½	10½, 9½	10½, 10½	10½, 10½	10½, 12½
Size of Governor . . . . . “	1½	1½	1½	1½	2	2
Estimated Weight . . . . . Lbs.	900	1200	1300	1600	1700	2400
Price of Engine, complete, on cars at Erie . . .	..	..	..	..	..	..

The engraving represents Detached Engines, Nos. 0, 1, 2, 3, 4 and 5.

Governor, Throttle, Pump, Heater, and all necessary Oil Cups, Cylinder and Pet Cocks are considered parts of the Engine and are included in above prices ; but Steam, Water and Exhaust Pipes, Governor Belts or Foundation Bolts are not included, and will not be furnished unless specially ordered. The sizes of Pulleys will be changed when necessary, without extra charge, except for extra weight of metal.

All Engines are thoroughly tested with steam before leaving the works, and are complete, ready for work,



## PORTABLE ENGINES.

20, 25, 30, 35, 40 AND 50 HORSE-POWER.

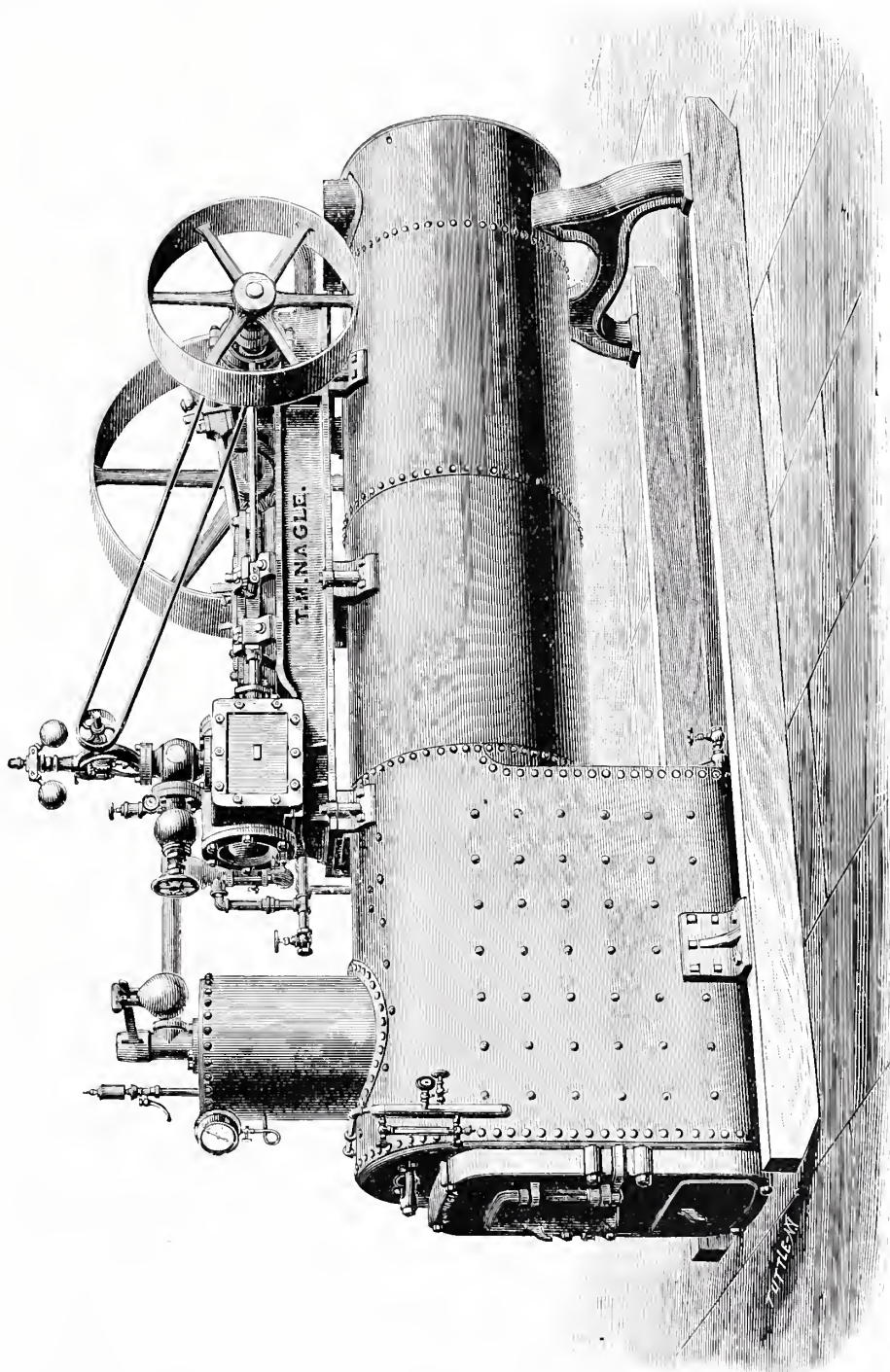


Fig. 1959.



PORTABLE ENGINES—CONTINUED.

Fig. 1959.

NUMBER . . . . .	0	1	2	3	4	5	6	7	8	9
Horse-Power . . . . .	6	8	9	10	12	15	20	25	30	35
Size of Cylinder . . . In.	5 x 8	6 x 9	7 x 9	7 x 10	8 x 10	8 x 12	9 x 12	10 x 12	10 x 15	11 x 15
Number of Revolutions . .	220	200	200	180	180	150	150	150	125	125
Diameter of Pulleys . . In.	14, 32	16, 36	16, 36	20, 44	20, 44	22, 48	32, 48	32, 54	36, 60	36, 60
Face of Pulleys . . . “	10½, 8½	10½, 9½	10½, 9½	10½, 10½	10½, 10½	10½, 12½	8½, 12½	8½, 12½	9½, 12½	9½, 12½
Diameter of Boiler . . . “	26	28	28	30	32	32	34	36	36	40
Length of Furnace . . . “	34	36	36	38	38	44	52	52	52	52
Width of Furnace . . . “	21	22	22	24	26	26	28	30	30	34
Height of Furnace . . . “	29	32	32	34	38	38	38	40	40	44
No. of 3-inch Tubes . . . .	17	18	20	22	26	26	30	34	34	40
Length of Tubes . . . In.	54	60	60	72	72	78	90	96	102	102
Diam. of Smoke Stack . “	12	13	13	14	15	15	16	18	18	20
Length of “ “ Feet.	18	18	18	18	20	20	24	24	24	30
Estimated Weight . . Lbs.	3800	4200	4500	5400	5800	7000	9000	10200	12000	13000
Price F. O. B. at Erie . . .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .

Fig. 1959 represents Portable Engines Nos. 6, 7, 8, 9, 10 and 11. Engines for Nos. 0, 1, 2, 3, 4 and 5, as shown on page 666.

Nos. 10 and 11 have an additional leg between skids and boiler.

For Nos. 10 and 11, 40 and 50 Horse-Power, send for special catalogue.

The above sizes of Pulleys will be found suitable for nearly all kinds of work, but will be changed if necessary.

The price includes Smoke Stack, Governor, Heater, Pump, Governor Belt, Steam Gauge, Water Gauge, Whistle, Safety Valve, Gauge Cocks, Check and Blow-off, Oil Cups and Pet Coeks. If any of these parts are not wanted, their price will be deducted.

All engines are thoroughly tested with steam before leaving the works, and are complete, ready for work.

The above Portable Engines will be mounted on wheels on short notice.

Order by this Catalogue Figure Number, stating size wanted.

UPRIGHT TUBULAR BOILERS.

FOR SUPPLYING PUMPS OR ENGINES WITH STEAM.

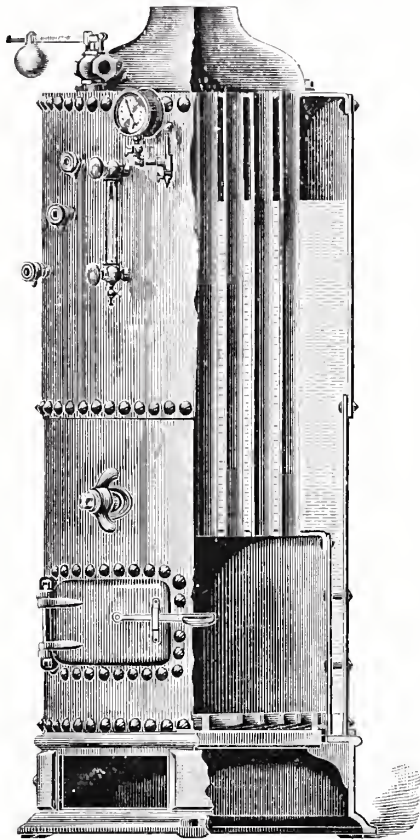


Fig. 1960.

SPECIFICATIONS—Bases of Cast Iron, with large Ash Doors; Hoods of improved patterns; Hand-holes above Crown Sheet and in bottom of leg.

These Boilers are made of best quality steel, and are tested at 150 pounds pressure before leaving works.

“Fixtures” comprise the Steam Gauge, Water Gauge, Gauge Cocks, Safety Valve, Blow-off Valve, Check and Stop Valves. Twelve square feet of heating surface to the horse-power.

NUMBER . . . . .	1	2	3	4	5	6	7	8	9	10	11	12
Horse-Power. . . . .	4	5	6	7	9	12	12	15	18	23	27	31
Diameter of Boiler. . . . . In.	24	24	24	30	30	30	36	36	36	42	42	42
Height of Boiler. . . . . Feet.	4	5	6	5	6	7	6	7	8	8	9	10
Diameter of Furnace. . . . . In.	20	20	20	25	25	25	31	31	31	37	37	37
Height of Furnace. . . . .	24	24	24	27	27	27	27	27	27	33	33	33
Thickness of Steel in Shell and Furnace. “	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{9}{32}$	$\frac{9}{32}$	$\frac{9}{32}$	$\frac{9}{32}$	$\frac{9}{32}$	$\frac{9}{32}$
Thickness of Steel in Heads. . . . . “	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{3}{8}$
Length of Tubes. . . . . “	24	36	48	33	45	57	45	57	69	63	75	87
Number of Tubes (all 2-in. diameter). . . . .	31	31	31	50	50	50	68	68	68	88	88	88
Actual square feet of Fire Surface. . . . .	45	60	75	90	118	148	151	186	221	280	325	383
Weight of Boiler without Base and Fixtures, about. . . . . Lbs.	900	1000	1100	1300	1500	1700	1950	2200	2450	3000	3300	3600
Weight of Boiler Base and Fixtures, about. . . . . “	280	280	280	460	460	460	780	780	780	1000	1000	1000
Weight of Boiler, complete. . . . . “	1180	1280	1380	1760	1960	2160	2730	2980	3230	4000	4300	4600

Order by this Catalogue Figure Number, stating size wanted.

# VERTICAL AND PORTABLE BOILER AND ENGINE.

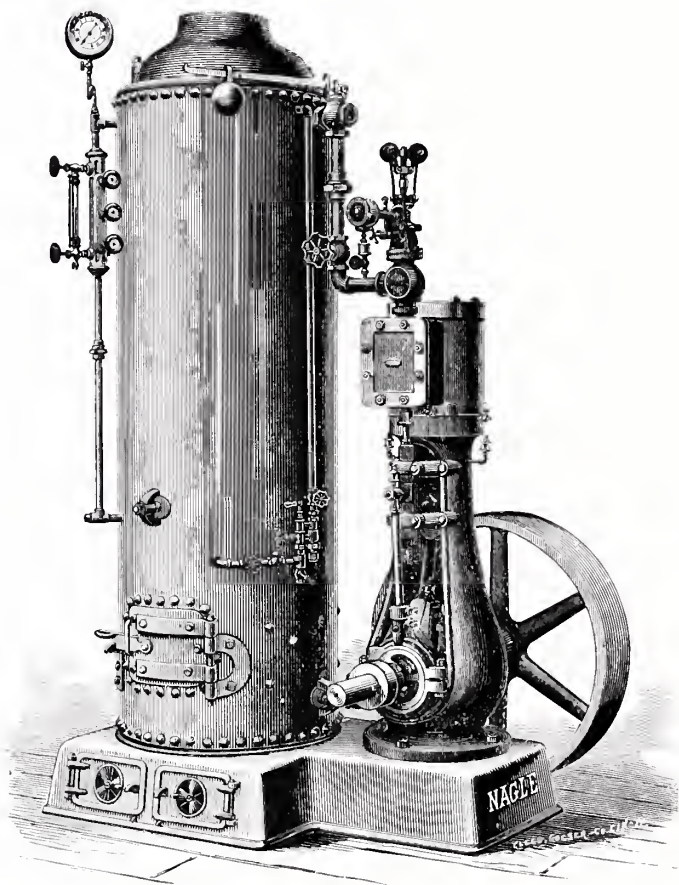


Fig. 1961.

The above illustration represents Engine and Boiler combined, which in some cases is preferable to having Engine and Boiler separate. These Engines are strictly first-class, being made of finest material by the best workmen. The prices, which are extremely low, will warrant all in need to give them a trial.

The price includes Injector and Pipe connections, but no Smoke Stack or Governor Belt.

NUMBER . . . . .	4	5	6	6A	7	8	8A	9	9A	11	13
Horse-Power . . . . .	3	4	5	5	7	10	10	12	12	20	25
Diameter of Cylinder and Length of Stroke . . . . .	3½ x 5	4 x 5	5 x 5	5 x 5	6 x 6	7 x 7	7 x 7	8 x 8	8 x 8	9 x 9	10 x 10
Diameter of Boiler . . . . Inches.	24	24	24	30	30	30	36	36	36	42	42
Height of Boiler . . . . . Feet.	4	5	6	6	6	7	6	7	8	8	9
Weight of Engine and Boiler . . .	1730	2000	2200	2600	2850	3850	4400	4950	5150	6700	7500
Price, complete, F. O. B. cars. . .	..	..	..	..	..	..	..	..	..	..	..

For prices and sizes of Fig. 1960, Upright Boilers, see page 669.  
Please notice the size of boilers furnished with Engines ; others will be substituted if wanted.

Order by this Catalogue Figure Number, stating size wanted.

VERTICAL OR UPRIGHT ENGINES.

MADE FROM 3 TO 25 HORSE-POWER.

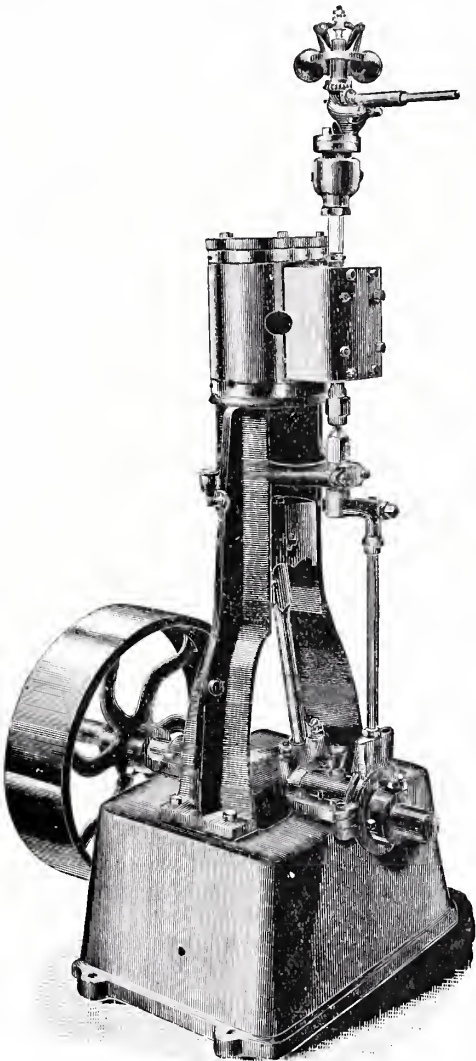


Fig. 1962.

The engraving represents Vertical Engines, of which the following are specifications. The Engines are thoroughly well made throughout of the best material. The cranks are large and made of solid forging, all bearings are of the best brass and babbitt; the piston is fitted with steam packing; the cylinder surrounded with a Hot Air Jacket, which reduces condensation to a minimum. All parts are made in duplicate, and interchangeable. All Engines are thoroughly tested with steam before leaving the works. Vertical or other styles of Boilers furnished when wanted.

NUMBER . . . . .	4	5	6	7	8	9	11	13
Horse-Power . . . . .	3	4	5	7	10	12	20	25
Diam. of Cyl. and Length of Stroke . . .	3½x5	4x5	5x5	6x6	7x7	8x8	9x9	10x10
Ordinary Number of Revolutions . . .	250	250	225	200	190	180	160	160
Diameter of Pulley . . . . . In.	20	20	24	24	30	36	40	48
Face of Pulley . . . . .	4	5	5	5	6	8	8½	10½
Size of Base . . . . .	18x18	21x21	21x21	23x23	24x24	30x30	32x32	34x34
“ Steam Pipe . . . . .	¾	1	1¼	1¼	1½	1½	2	2½
“ Exhaust Pipe . . . . .	1	1¼	1½	1½	2	2½	3	3
Weight of Engine, complete . . . Lbs.	450	700	800	1000	1600	1900	2500	3200
Price of Engine, complete, as per cut . . . . .								

Order by this Catalogue Figure Number, stating size wanted.



# SHIPMAN KEROSENE OIL ENGINE.

AUTOMATIC IN BOTH FUEL AND WATER.

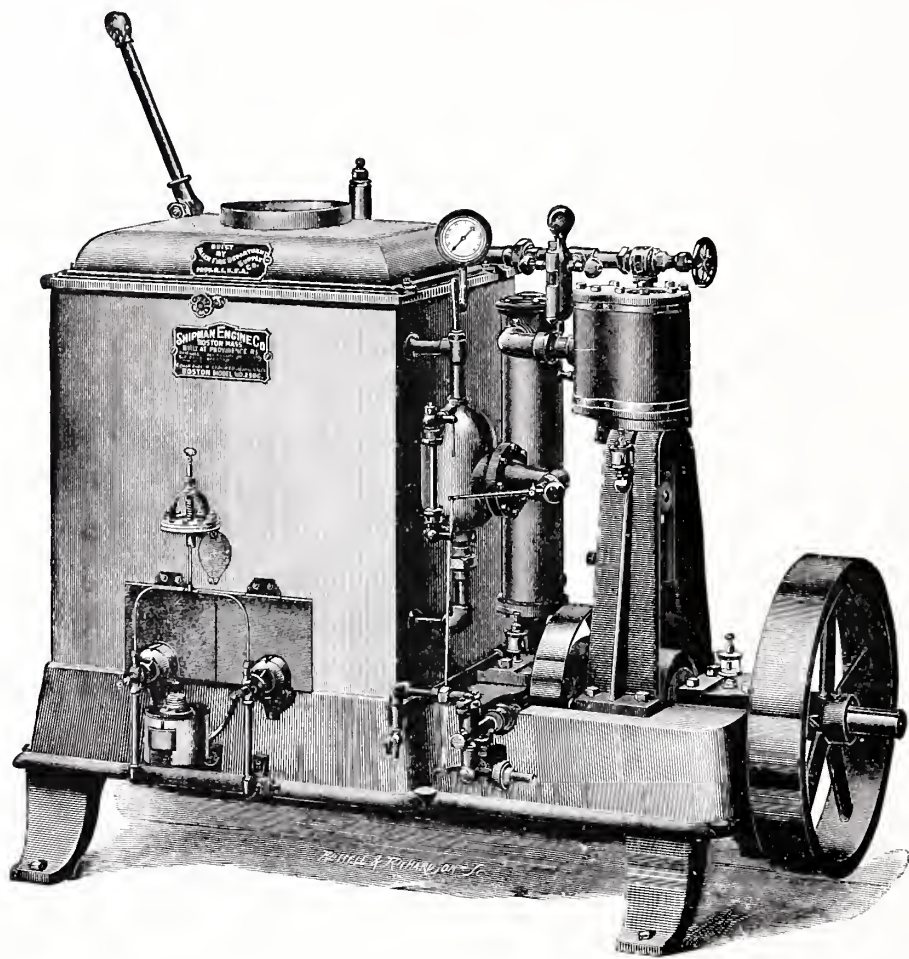


Fig. 1963.

Fig. 1963 shows the Shipman Engine, which has been so long and favorably known that a description is hardly necessary. We mention below eight reasons why this Engine should be purchased by any one in want of a light power. 1st. You can be your own engineer and fireman. 2d. Economy in the use of its fuel. 3d. Automatic in its water and fuel supply. 4th. It consumes only the amount of fuel it requires for the power taken. 5th. Puts out its own fire and relights it when more power is required. 6th. The moment the work is done the fuel expense stops. 7th. Its fuel has no dust, and the fire never has to be "drawn." 8th. If you have only one hour's work to do, you can get up steam pressure of 100 pounds, do the hour's work, put out the fire, and the consumption of fuel will not exceed one hour and seven or ten minutes, at a cost not to exceed three or five cents per horse-power.

Horse-Power.	Floor Space.	Height.	Stationary Weight.	Marine Weight.	Revolutions.	Diameter Bal. Wheel.	Size Cylinder.	Shaft.	Price.
1	24 x 35 -in.	33½-in.	489 lbs.	475 lbs.	450	12-in.	21 x 3-in.	1½-in.	\$175.00
2	26 x 45½ "	39 "	850 "	806 "	400	18 "	3 x 4 "	1½ "	275.00
4	26 x 48 "	45 "	925 "	895 "	350	18 "	3½ x 4 "	1½ "	375.00
6	27 x 60 "	42 "	1500 "	1365 "	325	24 "	4½ x 5 "	2 "	550.00
8	34 x 65 "	43 "	1602 "	1476 "	400	24 "	4½ x 5 "	2 "	700.00

# RIDER HOT AIR ENGINES.

## FOR PUMPING.

There is an old and common saying that, "what will suit one person won't another," and this is well applied to the different ways of handling water. While many of our customers prefer wind as a motive power, others are favorably inclined to Kerosene Engines, others to Steam and Hot Air Engines. Of the latter class, none are so favorably and well known as the celebrated "Rider" or

### RIDER HOT AIR ENGINE.

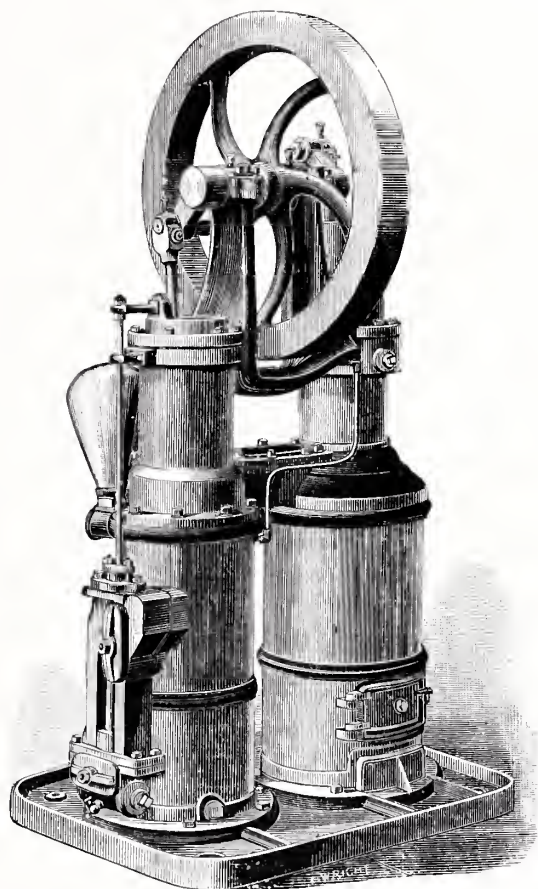


Fig. 1964.

**GAS**—We are also prepared to furnish the 4-inch and 4½-inch with furnaces for burning gas—either coal gas or gas made from gasoline. There are a number of these engines running very successfully, using natural gas for fuel.

In ordering a pumping engine, state what kind of fuel is to be used, as we invariably furnish the anthracite or hard coal furnace unless otherwise ordered (except the 4-inch and 4½-inch which are arranged for gas only).

## ADVANTAGES.

Absolute safety. No Steam. Valveless. Practically noiseless. No exhaust. Economical. No licensed or experienced engineer required—gardeners and ordinary domestic help can operate them. Do not affect insurance. Extremely simple. Can be used where steam would be objectionable. All parts of engine and pump can be examined without difficulty. Can replenish the fire without stopping the engine. Can be arranged to pump out of deep wells, either dug or artesian, or driven wells.

For prices and other information, see page 674.

"Ericsson" Hot Air Engines, which we are pleased to offer them at the manufacturer's price, together with all necessary attachments for a complete water supply. The many advantages of running water for suburban residences, also for stock and farm use, are plainly stated in the wind engine department of our catalogue, to which we refer. No motive power is better adapted for this work than Hot Air Engines, and to all interested parties we would be pleased to mail our special circulars.

## FUEL.

One very important feature of these machines is the fact that they may be successfully operated with almost any kind of fuel.

**COAL**—The most economical fuel for these engines is anthracite coal of small size (chestnut). The amount of this fuel necessary to run one of them all day, is exceedingly small. Coke makes capital fuel also.

**SOFT COAL AND WOOD**—When, however, hard coal cannot be had and soft coal or wood only are available, special furnaces adapted to such fuel must be used. This subject has been given considerable attention by the manufacturers who have perfected these special furnaces, and are now prepared to furnish these engines with furnaces for burning either hard coal, soft coal or wood, with the best of satisfaction.

# THE RIDER HOT AIR ENGINES—CONTINUED.

We furnish with every machine printed directions how to set up and operate.  
All the Pump Cylinders are made of brass and will not rust.  
The Pump Rods are made either of phosphor-bronze or compressed steel, as the circumstances may require.

## SIZE OF PIPE AND QUANTITY OF FUEL.

4 -inch Engine, 1 -inch Suction and Discharge, uses Gas only.									
4½	"	"	1	"	"	"	"	"	"
5	"	"	1½	"	"	"	"	about 3 lbs.	Coal per hour.
6	"	"	1½	"	"	"	"	5	"
8	"	"	2	"	"	"	"	7	"
10	"	"	2½	"	"	"	"	9	"

These Engines will pump, approximately, the number of gallons specified to a height of 50 feet ; but they will pump more water to a lesser height, or less water to a greater height.

## PRICE-LIST — Fig. 1964.

SHOWING DIMENSIONS, WEIGHT, NUMBER OF GALLONS PER HOUR, ETC.

Size of Cylinders Inches.	Floor Space.	Height to Top of Fly Wheel.	Revolutions per Minute.	Weight, Pounds.	Gallons per Hour, 50 Ft. High.	Price with Rolling Valve Pump Attached to Cooler of Engine.
4	1 foot 6 inches x 2 feet 2 inches.	3 feet 9 in.	120 to 200	490	200	\$200.00
4½	1 " 6 " x 2 " 2 "	3 " 9 "	120 " 200	520	250	225.00
5	2 feet 2 " x 2 " 10 "	4 " 10 "	100 " 160	1050	350	300.00
6	2 " 5 " x 3 " 4 "	5 " 11 "	80 " 120	1800	1000	400.00
8	2 " 5 " x 3 " 11 "	6 " 11 "	80 " 120	2700	2000	550.00
10	2 " 8 " x 4 " 4 "	7 " 9 "	80 " 110	3600	3000	700.00

Arranged for deep well pumping: 6-inch are \$25.00 extra; 8-inch and 10-inch are \$30.00 extra.  
The prices named above include Engine, Furnace, Copper Air and Vacuum Chambers; printed directions in book form how to set and operate; wrench, shovel and poker; oil and oil-can; everything complete, ready for suction and discharge pipe.

When ordering a Pumping Engine, please answer the following questions from actual measurements and careful estimates :

- What is the greatest quantity of water needed per day?
- What is the extreme depth of well?
- What is the depth of water in well in dry season?
- What is the usual depth of water in well?
- What is the diameter of well?
- What is the vertical suction from the proposed foundation of engine?
- What is the horizontal length of suction pipe?
- What is the vertical discharge from top of well?
- What is the horizontal length of discharge pipe?
- If the water is to be pumped from city mains, state the height from the engine to the top of tank, and also how high the water rises naturally above where the engine is to be placed.

## GUARANTEE.

Every Pumping Engine sold is guaranteed by the manufacturers to be in every respect as represented in this Catalogue. If an Engine fails in any particular, they agree to make the same fully satisfactory or refund the amount paid for it, on return of the Engine to them.



# ERICSSON PUMPING ENGINE.

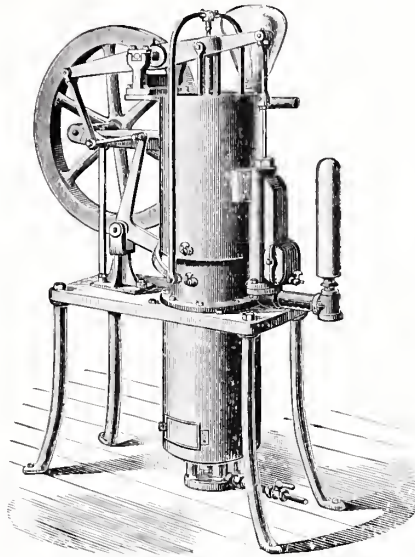


Fig. 1965.

The general remarks relating to the Rider Engine on page 673, are applicable also to the Ericsson, and same directions in ordering should be followed.

## DESCRIPTION OF ENGINE.

The "De Lamater-Ericsson" Hot Air Pumping Engine is a single-cylinder engine, in which are two pistons, one called the main or air piston, which receives and transmits the power, and the other called the transfer piston, the office of which is to transfer the air contained in the machine alternately and at the proper time from one end of the cylinder to the other.

The cylinder is provided at its upper end with a water jacket, through which all the water passes on its way from the well to the tank. This keeps the upper end of the cylinder cool, while the lower end is exposed to the fire and becomes as hot as it is practicable to make it. By the peculiar arrangement of connections between the air and transfer pistons the proper relative motions between these pistons are obtained.

The operation is as follows : After the lower end of the cylinder has been sufficiently heated, which usually takes only a very few minutes, the engine must be started by hand by giving it one or two revolutions. The air contained in the machine is first compressed in the cold part of the cylinder ; it is then transferred to the lower end, where it is instantly heated and expanded, thus furnishing the power.

This engine, like all other hot air engines, is only single-acting. The momentum of the fly wheel continues the revolution until it receives an additional impulse by the repetition of the above-mentioned conditions, which occur once in every revolution. The same air is used continuously, and is cooled, compressed, heated and expanded in the regular order and without noise.



# ERICSSON PUMPING ENGINE—CONTINUED.

## WEIGHT OF ENGINE, SIZE OF SUCTION AND DISCHARGE PIPES, AND SPEED.

The 5-inch engine weighs 250 lbs., requires  $\frac{3}{4}$ -inch pipe, and runs from 80 to 100 revolutions per minute ; the 6-inch weighs 450 lbs., requires 1-inch pipe, and runs from 70 to 90 revolutions per minute ; the 8-inch weighs 700 lbs., requires  $1\frac{1}{4}$ -inch pipe, and runs from 60 to 80 revolutions per minute ; the 10-inch weighs 1,300 lbs., requires  $1\frac{1}{2}$ -inch pipe, and runs from 60 to 80 revolutions per minute, and the 12-inch weighs 1,450 lbs., requires 2-inch pipe, and runs from 60 to 80 revolutions per minute.

Fig. 1965.

Diameter of Cylinder.	Floor Space.	Height.	Cubic Feet of Gas per Hour.	Anthracite Coal per Hour.	Gallons per Hour. 50 ft. High.	Price with Coal or Wood Furnace.	Price with Gas Furnace.
5-inch.	2 ft. 2 in. x 14 in.	4 ft.	15	. .	150	. .	150
6 “	3 “ 5 “ x 20 “	4 “ 5 in.	18	$2\frac{1}{2}$ lbs.	300	\$210	200
8 “	4 “ x 21 in.	5 “ 5 “	25	$3\frac{1}{8}$ “	500	250	235
10 “	4 “ 2 in. x 2 ft. 6 in.	6 “ $1\frac{1}{2}$ “	. .	6 “	1000	300	. .
12 “	4 “ 6 “ x 2 “ 3 “	6 “ 6 “	. .	8 “	1500	450	. .

Arranged for deep well pumping : 8-inch engines are \$10 extra ; 10-inch and 12-inch are \$15 extra. This price includes a deep well pump with its piston and air chamber, and also upper stuffing box and plunger ; also the necessary brass guides for the pump rod, but does not include any pipe or pump rod.

These Engines will pump, approximately, the number of gallons specified to a height of 50 feet ; but they will pump more water to a lesser height, and less water to a greater height.

The above prices include Engine, Pump, Copper Air Chamber, Vacuum Chamber, Furnace, Wrench, Oil-can and Oil.

Send for Special Catalogues.

# DEANE COMBINED STEAM PUMP AND BOILER.

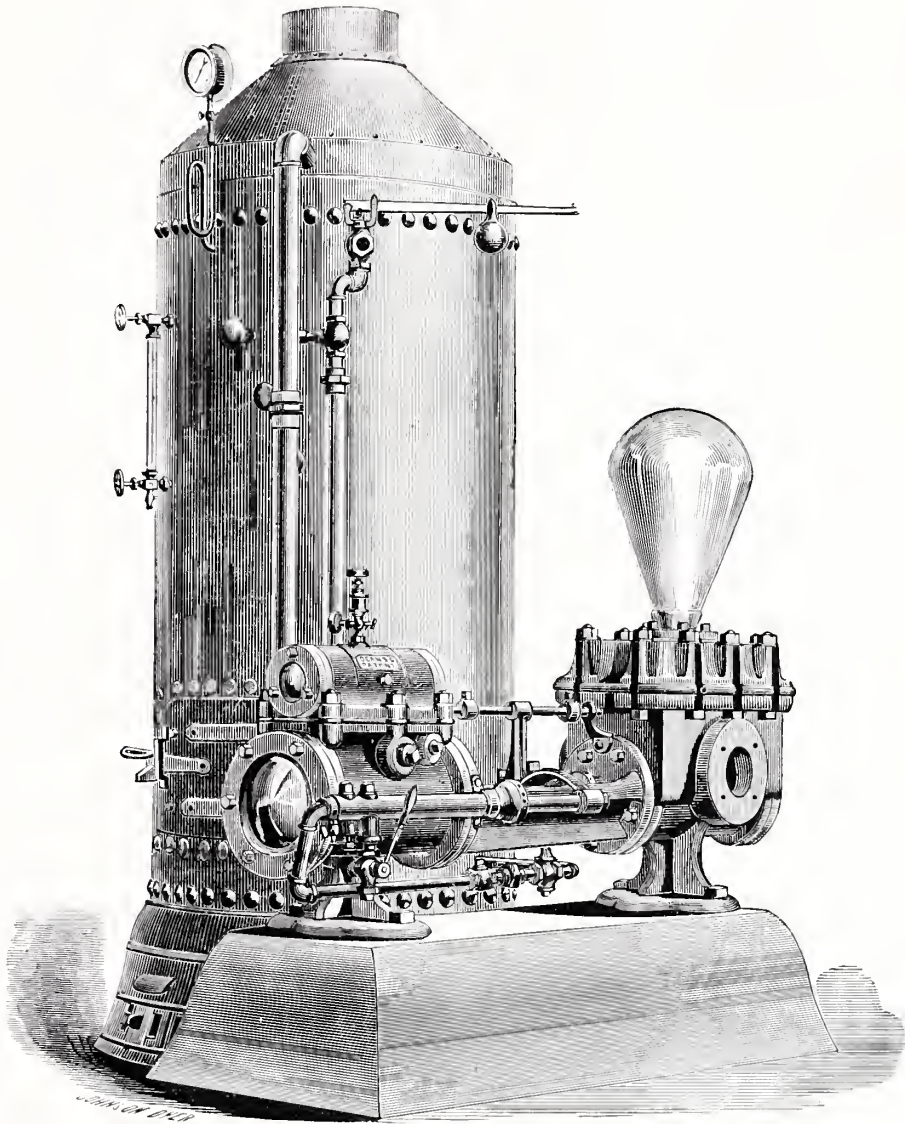


Fig. 1966.

This apparatus is light, compact, strong and simple. It is easily understood and managed. It is complete with Feed Pump, Gauges, Gauge Cocks, Safety Valve, Throttle Valve, Blow-off Cock, Steam, Exhaust and Feed Pipes, Smoke Bonnet, Grates and all necessary fittings and trimmings. The Boiler is of the very best material and construction. When the water is to be elevated to a height not exceeding sixty-five feet, the tank pumps in the following list are preferable; exceeding this, the regular size should be used. Many other sizes and combinations on hand or to order at short notice. The feed water is supplied by an auxiliary feed attached to the main pump, when necessary.

For sizes of Fig. 1966 see page 678.

# DEANE COMBINED STEAM PUMP AND BOILER—CONTINUED.

DIMENSIONS OF COMBINED PUMPS AND BOILERS—Fig. 1966.

Number.	DIMENSIONS OF STEAM PUMPS.								DIMENSIONS OF BOILERS.			Weight Ready for Shipping.	Price Complete.
	Diameter of Steam Cylinder in Inches.	Diameter of Water Cylinder in Inches.	Length of Stroke in Inches.	Gallons per Stroke.	Strokes per Minute.	Size of Steam Supply Pipe.	Size of Steam Exhaust Pipe.	Size of Suction.	Size of Discharge.	Diameter of Shell.	Height of Shell.	Number of Tubes.	
0	3	2	5	.06	1 to 300	$\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{2}$	1	20	48	20	1250
1	3 $\frac{1}{2}$	2 $\frac{1}{2}$	5	.08	1 " 300	$\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{2}$	1	20	48	20	1300
2	4	2 $\frac{1}{2}$	5	.11	1 " 300	$\frac{1}{2}$	$\frac{3}{4}$	1 $\frac{1}{2}$	1	20	48	20	1300
3	5	3 $\frac{1}{4}$	7	.25	1 " 275	$\frac{3}{4}$	1	2	1 $\frac{1}{2}$	24	60	25	1800
4	5 $\frac{1}{2}$	3 $\frac{3}{4}$	7	.34	1 " 275	$\frac{3}{4}$	1	2	1 $\frac{1}{2}$	24	60	25	1800
4 $\frac{1}{2}$	7	4 $\frac{1}{4}$	8	.49	1 " 275	1	1 $\frac{1}{2}$	3	2	24	60	25	2050
5	7	4 $\frac{1}{2}$	10	.69	1 " 250	1	1 $\frac{1}{2}$	3	2	30	60	60	2800
6	7 $\frac{1}{2}$	5	10	.85	1 " 250	1	1 $\frac{1}{2}$	3	2	30	60	60	2800
6 $\frac{1}{2}$	8	5	12	1.02	1 " 250	1	1 $\frac{1}{2}$	3	2 $\frac{1}{2}$	30	60	60	3000
7	10	6	12	1.47	1 " 200	1 $\frac{1}{2}$	2	4	4	..	..	..	..
8	12	7	12	2.00	1 " 200	2	2 $\frac{1}{2}$	5	4	..	..	..	..
Tank Pumps.	4	4	5	.27	1 " 300	$\frac{1}{2}$	$\frac{3}{4}$	2	1 $\frac{1}{2}$	20	48	20	1325
	5 $\frac{1}{2}$	5 $\frac{1}{2}$	7	.72	1 " 275	$\frac{3}{4}$	1	3	2	24	60	25	2000
	7	7	10	1.66	1 " 250	1	1 $\frac{1}{2}$	5	4	30	60	60	3200
	8	6	12	1.47	1 " 250	1	1 $\frac{1}{2}$	4	4	30	60	60	3300
	8	7	12	2.00	1 " 250	1	1 $\frac{1}{2}$	5	4	30	60	60	3350
	8	8	12	2.61	1 " 250	1	1 $\frac{1}{2}$	5	5	30	60	60	3450

Nos. 0 to 4 inclusive are supplied with patent hand lever attachments for filling the boilers after blowing off. This list is subject to change without notice. The smaller sizes of the above apparatus will be mounted on trucks when so ordered at an additional cost of ten per cent.

# DEANE BOILER FEED OR PRESSURE PUMP.

No. 3 PUMP WITH HAND LEVER.

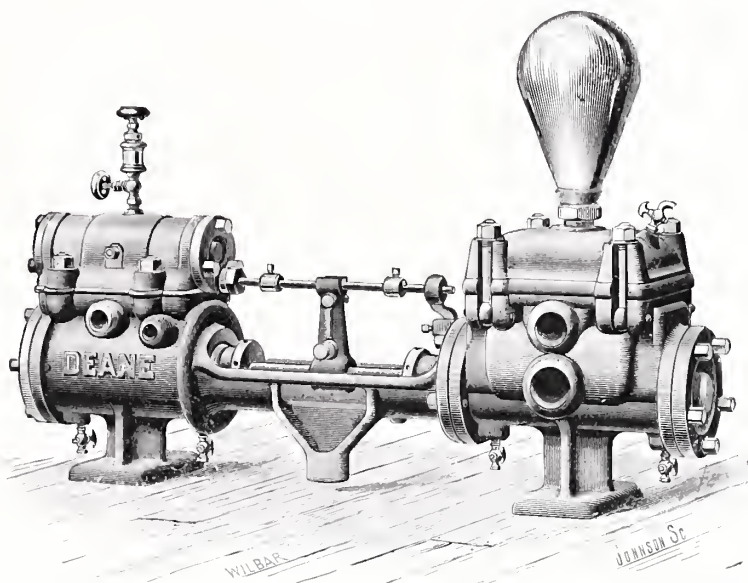


Fig. 1967.  
HAND LEVER.



Fig. 1968.

The Deane Pumps are especially desirable for feeding boilers, as they are positive at any speed, or under any pressure. They are arranged for either hot or cold water or for other fluids. The hand-power attachment is superior to all others. The piston rods, water pistons, valve seats, etc., are in all cases of best composition metal. All parts are made to gauge, and are strictly interchangeable.

Number.	Diam. of Steam Cyl. in Inches.	Diam. of Water Cyl. in Inches.	Length of Stroke in Inches.	Gallons per Stroke.	Strokes per Minute.	Capacity per Minute at Given Speed.		Extreme Length in Inches.	Extreme Width in Inches.	Size of Steam Supply Pipe.	Size of Steam Exhaust Pipe.	Size of Suction.	Size of Discharge.	* Price.
0	3	2	5	.06	1 to 300	150 Strokes	9 Gallons	29½	7	¾	¾	1½	1	
1	3½	2½	5	.08	1 " 300	150 "	12 "	33½	7	¾	¾	1½	1	
1½	4	2½	5	.10	1 " 300	150 "	15 "	33½	7½	¾	¾	1½	1	
2	4	2½	5	.11	1 " 300	150 "	16 "	33½	7½	¾	¾	1½	1	
2½	4½	3	5	.15	1 " 300	150 "	22 "	34	7½	¾	¾	1½	1½	
3	5	3½	7	.25	1 " 275	125 "	31 "	43½	8½	1	1	2	1½	
4	5½	3½	7	.34	1 " 275	125 "	42 "	43½	9½	1	1	2	1½	
4½	7	4½	8	.49	1 " 275	120 "	58 "	51½	9½	1	1½	3	2	
5	7	4½	10	.69	1 " 250	100 "	69 "	55	12	1	1½	3	2	
6	7½	5	10	.85	1 " 250	100 "	85 "	55	12	1	1½	3	2	
6½	8	5	12	1.02	1 " 250	100 "	102 "	63	12	1	1½	3	2½	
7	10	6	12	1.47	1 " 200	100 "	147 "	69	14	1½	2	4	4	
8	12	7	12	2.00	1 " 200	100 "	200 "	69	19	2	2½	5	4	
9	14	8	12	2.61	1 " 200	100 "	261 "	69	19	2	2½	5	5	
10	16	10	18	6.12	1 " 200	80 "	489 "	93	21	2	2½	8	6	
11	18	12	24	11.75	1 " 180	50 "	587 "	112	28	3	3½	10	8	
12	20	14	24	15.99	1 " 180	50 "	799 "	112	26	3	3½	12	10	
13	24	18	24	26.43	1 " 150	50 "	1321 "	.	38	4	4½	14	12	
14	30	22	24	39.49	1 " 150	50 "	1974 "	.	.	4½	6	18	14	

Every Pump thoroughly tested and sold under a full guarantee. \* Prices on application.



PATENT ARTESIAN PUMPING ENGINE.

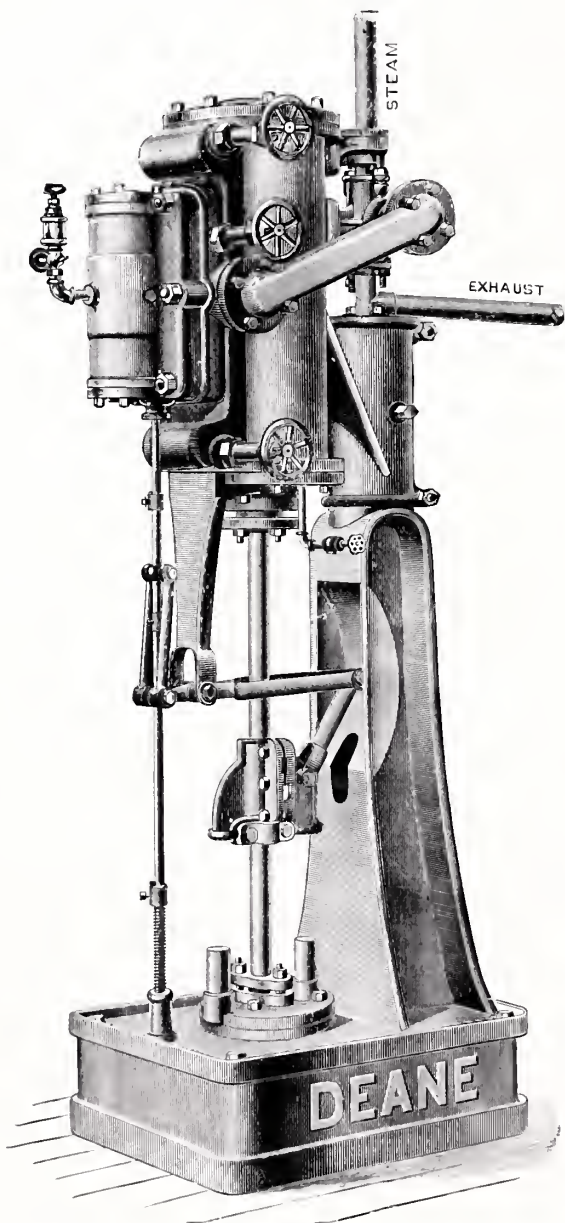


Fig. 1969.

Fig. 1969 represents an Artesian Pumping Engine for use in Artesian Wells, in connection with our Fig 1783 Cylinders described on page 609.

These engines have been thoroughly tested, and are fully warranted to stand the most severe test.

The cylinder can be swung aside from over the well in less than a minute without disturbing any pipes, leaving the well so that the rods and valves can be readily overhauled.

WELL HEAD.



Fig. 1970.

Discharge can be turned in any direction.

Fig.	Diameter of Steam Cylinder, Inches.	Length of Stroke, Inches.	Single Strokes per Minute.	Dimensions of Base.	Size of Steam Supply Pipe.	Size of Steam Exhaust Pipe.	WELL HEAD.		Weight, Ready for Shipping.	†Price.
							†Pipe.	Outlet.		
1969	6	16	50 to 100	21 X 27	1	1½	4	1½	1220	
1969	7	16	50	21 X 27	1	1½	4	1½	1300	
1969	8	24	35	34 X 24	1½	1½	7	4	2060	
1969	10	24	35	34 X 24	1½	1½	7	4	2260	
1969	12	24	35	34 X 24	1½	1½	7	4	2380	

\*These dimensions can be reduced with bushing if necessary.  
†Prices on application.

# THE DEANE DUPLEX PUMPS FOR FIRE SERVICE.

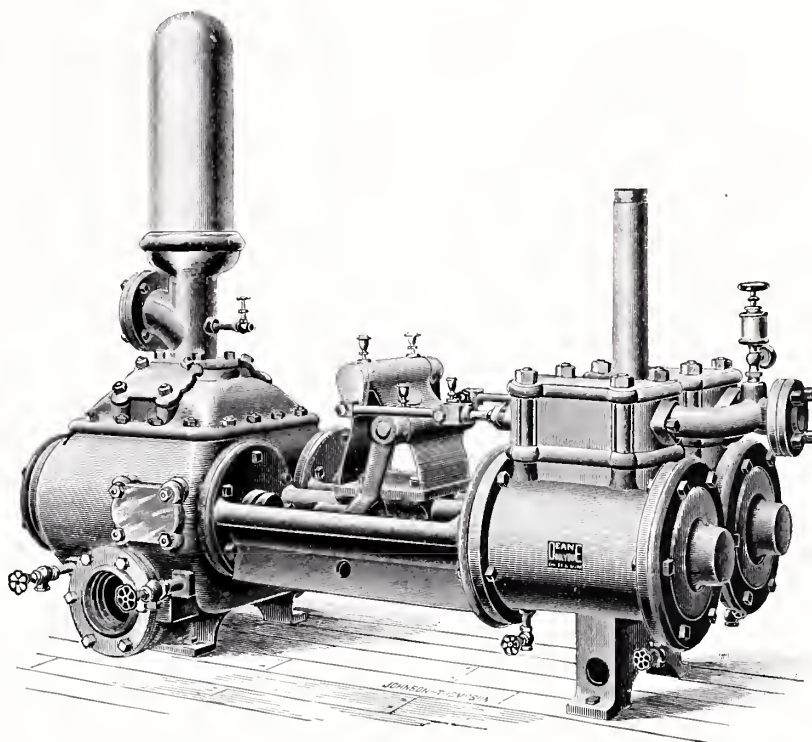


Fig. 1971.

Have large water valve and port area. They are of extraordinary strength, of the best materials, and most thoroughly put together.

The Plunger Packing Rings, Water Valve Seats, Stems and Covers are all of Solid Composition.

Immediate access is given to every part of the Pump by means of conveniently arranged hand-holes.

Every machine is subjected to a rigorous test with steam and water before leaving the factory.

Diam. of Steam Cylinders in In.	Diam. of Plungers in In.	Length of Stroke in In.	Gallons per Stroke of One Plunger.	Strokes per Minute of Each Plunger.	Total Capacity per Minute at Given Speed.	Size of Steam Supply Pipe.	Size of Steam Exhaust Pipe.	Size of Suction.	Size of Dis-charge.	Price.
7½	3¾	10	.47	100 to 150	100 to 140	1½	2	4	4	
9	4	10	.54	100 " 150	110 " 165	2	2½	4	4	
9	4½	10	.69	100 " 150	140 " 210	2	2½	4	4	
10	4½	10	.69	100 " 150	140 " 210	2	2½	5	4	
10	5	10	.85	100 " 150	170 " 250	2	2½	5	5	
12	5½	10	.93	100 " 150	190 " 280	2½	3	6	5	
12	6	10	1.22	100 " 150	250 " 370	2½	3	6	5	
14	6	10	1.22	100 " 150	250 " 370	2½	3	6	5	
14	7	10	1.66	100 " 150	335 " 500	2½	3	6	6	
16	7½	10	1.91	100 " 150	380 " 575	2½	3	6	6	
16	8	10	2.17	100 " 150	435 " 650	2½	3	6	6	
18½	8½	10	2.45	100 " 150	490 " 735	3	4	6	6	
18½	9½	10	2.90	100 " 150	580 " 870	3	4	8	7	
18½	9½	18	5.23	60 " 100	627 " 1046	3½	4	10	8	

Brass Plungers and Piston Rods six per cent. extra.

These machines are built for service, and are recommended by the leading insurance companies.

IRON SHAFTING, HANGERS, COUPLINGS  
AND COLLARS.



Fig. 1972.

Cut by Lathe to any length desired (down to one foot) without extra charge.

Diameter in Inches.	Weight per Foot. For Iron.	Price per Lb. Cut to Length	Diameter in Inches.	Weight per Foot. For Iron.	Price per Lb. Cut to Length	Diameter in Inches.	Weight per Foot. For Iron.	Price per Lb. Cut to Length
$\frac{5}{8}$	1.02	\$0.18	$1\frac{7}{8}$	5.41	\$0.10	$2\frac{3}{8}$	18.03	\$0.09
$1\frac{1}{8}$	1.25	.18	$1\frac{1}{2}$	5.89	.10	$2\frac{1}{2}$	18.91	.09
$1\frac{3}{8}$	1.47	.15	$1\frac{3}{4}$	6.40	.10	$2\frac{1}{4}$	19.79	.09
$1\frac{5}{8}$	1.74	.15	$1\frac{5}{8}$	6.91	.10	$2\frac{3}{4}$	20.71	.09
$1\frac{7}{8}$	2.00	.13	$1\frac{1}{4}$	7.45	.10	$2\frac{1}{2}$	21.63	.09
$1\frac{9}{8}$	2.30	.13	$1\frac{3}{8}$	8.01	.10	$2\frac{1}{2}$	22.60	.09
1	2.61	$.11\frac{1}{2}$	$1\frac{1}{2}$	8.60	.10	3	23.56	.09
$1\frac{1}{8}$	2.96	$.11\frac{1}{2}$	$1\frac{5}{8}$	9.20	.10	$3\frac{1}{8}$	25.60	.09
$1\frac{3}{8}$	3.31	$.11\frac{1}{2}$	$1\frac{3}{4}$	9.83	.09	$3\frac{1}{4}$	26.62	.09
$1\frac{5}{8}$	3.70	$.10\frac{1}{2}$	2	10.47	.09	$3\frac{3}{4}$	27.65	.09
$1\frac{7}{8}$	4.09	$.10\frac{1}{2}$	$2\frac{1}{8}$	11.15	.09	$3\frac{5}{8}$	29.82	.09
$1\frac{9}{8}$	4.50	$.10\frac{1}{2}$	$2\frac{1}{4}$	11.82	.09	$3\frac{7}{8}$	30.95	.09
$1\frac{11}{8}$	4.95	$.10\frac{1}{2}$	$2\frac{3}{8}$	12.54	.09	$3\frac{1}{2}$	32.07	.09
...	...	...	$2\frac{1}{2}$	13.25	.09	$3\frac{5}{8}$	34.40	.10
...	...	...	$2\frac{5}{8}$	14.00	.09	$3\frac{1}{2}$	35.60	.10
...	...	...	$2\frac{3}{4}$	14.76	.09	$3\frac{3}{4}$	36.81	.10
...	...	...	$2\frac{7}{8}$	15.57	.09	$3\frac{7}{8}$	39.31	.10
...	...	...	$2\frac{1}{2}$	16.37	.09	$3\frac{1}{2}$	40.59	.10
...	...	...	$2\frac{9}{8}$	17.20	.09	4	41.88	.10

TRANSMITTING EFFICIENCY OF TURNED IRON SHAFTING AT DIFFERENT SPEEDS.  
As a Prime Mover or Head Shaft carrying Main Driving Pulley or Gear, well supported by bearings.

FORMULA FOR SECOND MOVER. LINE SHAFT. FORMULA FOR PRIME MOVER. HEAD SHAFT.

$$\frac{\text{Diameter}^2 \times \text{R. P. M.}}{80} = \text{Horse-Power.}$$

$$\frac{\text{Diameter}^2 \times \text{R. P. M.}}{100} = \text{Horse-Power.}$$

PRACTICAL RULES FOR DETERMINING SIZE AND SPEED OF PULLEYS AND GEARS.

“r. p. m.” is used for number of revolutions per minute. In the formulas, it will be understood that the term “driver” indicates that diameter of driving pulley is to be taken, and that the term “driven” indicates that diameter of driven pulley is to be taken; or, in gearing calculations, either the number of teeth or diameter in inches.

3d. To determine speed of driving pulley, multiply diameter of driven pulley by its r. p. m. and divide this product by diameter of driver.

Formula  $\frac{\text{Driven} \times \text{r. p. m. of Driven.}}{\text{Driver.}} = \text{r. p. m. of Driver.}$

1st. To determine diameter of driving pulley, multiply diameter of driven pulley by its number of revolutions per minute and divide this product by r. p. m. of driver.

Formula  $\frac{\text{Driven} \times \text{r. p. m. of Driven.}}{\text{r. p. m. of Driver.}} = \text{Driver.}$

2d. To determine diameter of driven pulley, multiply diameter of driver by its r. p. m. and divide this product by r. p. m. of driven.

Formula  $\frac{\text{Driver} \times \text{r. p. m. Driver.}}{\text{r. p. m. of Driven.}} = \text{Driven.}$

4th. To determine speed of driven pulley, multiply diameter of driving pulley by its r. p. m. and divide the product by diameter of driven pulley.

Formula  $\frac{\text{Driver} \times \text{r. p. m. of Driver.}}{\text{Driven.}} = \text{r. p. m. of Driven.}$

Driving and other extra heavy pulleys should always be located as near bearings as possible.

## STEEL RIM PULLEYS.

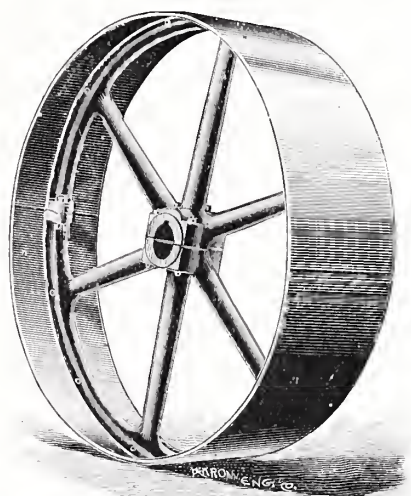


Fig. 1973.

## STEEL RIM PULLEYS—Fig. 1973.

Diameter of Pulley.	WIDTH OF FACE IN INCHES.												
	3	4	5	6	7	8	9	10	12	14	16	18	20
6	1.30	1.45	1.75	2.00	2.40	2.75	3.15	3.75	4.25	4.40	5.10	5.80	6.40
7	1.50	1.75	2.00	2.35	2.95	3.35	3.75	4.20	4.40	5.10	5.80	6.40	7.10
8	1.75	1.95	2.40	3.00	3.40	3.70	4.20	4.40	5.10	5.90	6.80	7.70	8.30
9	2.00	2.30	2.50	2.80	3.30	3.80	4.20	4.30	5.30	6.10	7.00	7.90	8.50
10	2.30	2.60	3.00	3.40	3.60	4.10	4.50	4.80	5.60	6.40	7.30	8.20	8.80
11	2.55	2.70	3.15	3.50	3.80	4.40	4.70	5.10	5.90	6.80	7.70	8.60	9.20
12	2.80	3.10	3.40	3.70	4.30	4.60	4.90	5.40	6.20	7.30	8.20	9.10	9.70
13	2.90	3.30	3.70	4.15	4.55	5.00	5.40	5.80	6.60	7.70	8.60	9.50	10.10
14	3.20	3.60	4.20	4.50	4.90	5.20	5.70	6.10	7.10	8.30	9.20	10.10	10.70
15	3.30	3.80	4.30	4.70	5.10	5.50	6.00	6.50	7.50	8.80	9.70	10.60	11.20
16	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	8.00	9.40	10.80	12.20	13.60
17	3.70	4.20	4.70	5.20	5.70	6.20	6.80	7.40	8.50	10.00	11.70	13.40	15.10
18	3.85	4.40	4.95	5.50	6.05	6.60	7.25	7.90	9.10	10.80	12.50	14.90	17.20
19	4.00	4.50	5.15	5.80	6.40	7.00	7.80	8.30	9.70	11.50	13.40	16.10	18.80
20	4.55	4.90	5.55	6.20	6.85	7.50	8.20	8.90	10.30	12.30	14.30	17.40	20.80
21	4.70	5.15	5.80	6.50	7.20	7.90	8.65	9.40	11.00	13.10	15.30	18.40	22.00
22	4.85	5.30	6.10	6.85	7.75	8.40	9.20	10.00	11.80	13.90	16.40	19.70	23.40
23	5.00	5.60	7.20	7.40	8.15	8.90	9.75	10.60	12.50	14.80	17.50	20.90	24.60
24	5.15	5.90	6.70	7.50	8.45	9.40	10.35	11.30	13.30	15.70	18.70	22.10	26.00
25	5.30	6.50	7.40	8.30	9.10	10.00	10.95	11.90	14.10	16.70	19.80	23.30	27.30
26	5.45	6.90	7.80	8.70	9.65	10.60	11.65	12.70	15.00	17.70	20.90	24.50	28.70
27	5.60	7.20	8.25	9.30	10.30	11.30	12.40	13.50	16.00	18.70	22.00	25.60	30.10
28	5.75	7.60	8.30	9.90	10.90	11.90	13.00	14.30	16.90	19.70	23.10	26.90	31.50
29	5.90	8.00	9.25	10.50	11.50	12.50	13.80	15.10	17.80	20.80	24.20	28.00	32.00
30	6.05	8.50	9.80	11.10	12.20	13.20	14.60	15.90	18.70	21.80	25.40	29.20	34.30



WOOD SPLIT PULLEYS.

In the construction of these Pulleys, nothing but the best quality of kiln-dried lumber is used, the arms and hubs being cut from hard maple, thoroughly seasoned.

THE HUBS are bored so that when placed in position the ends of the grain come in contact with the shaft, making it impossible for a pulley to work loose on the shaft after once being properly adjusted.

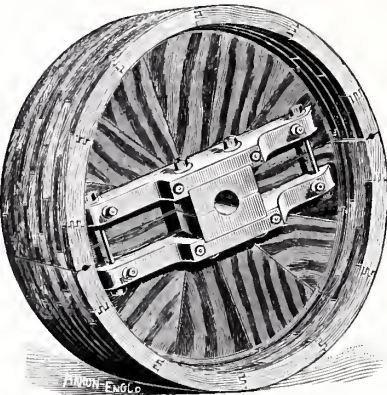


Fig. 1974.

THE WEB is composed of twelve segmental pieces, tongued and grooved, and glued together, the grain of the wood in each being in a radial line from centre to circumference.

THE RIM is constructed by building up an equal number of rings, and which rings are composed of a number of segments, tongued and grooved, and glued together at ends, on both sides of the web, the first two or three rings, according to width of face, being securely attached to the web on either side, by means of hardwood dowels, or screws, and glue, while the balance of the rings are thoroughly nailed and glued together, after which the pulley is placed in a hydraulic press of sufficient pressure, where it is allowed to remain while the glue hardens. The pulley is then completely turned and sand-papered inside and out, after which it is carefully filled, oiled,

and finished with best quality of transparent pattern shellac, thus making the Strongest, Finest Finished, and Best Wood Pulley in the world.

Diameter, Inches.	WIDTH OF FACE IN INCHES.																			
	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20			
12	2.80	2.95	3.20	3.55	3.70	3.85	4.10	4.30	4.70	5.10	5.50	5.90	. .	. .	. .	. .	. .			
13	2.90	3.10	3.40	3.75	4.00	4.25	4.55	4.80	5.20	5.60	6.00	6.40	. .	. .	. .	. .	. .			
14	3.00	3.25	3.65	4.10	4.40	4.70	5.00	5.35	5.70	6.00	6.30	6.60	. .	. .	. .	. .	. .			
15	3.10	3.45	3.85	4.35	4.75	5.10	5.50	5.85	6.20	6.50	6.85	7.20	. .	. .	. .	. .	. .			
16	3.30	3.65	4.05	4.60	5.05	5.50	5.90	6.30	6.65	7.00	7.35	7.70	8.35	. .	. .	. .	. .			
17	3.50	3.85	4.25	4.85	5.35	5.85	6.30	6.70	7.10	7.50	7.90	8.25	9.05	. .	. .	. .	. .			
18	3.70	4.05	4.55	5.10	5.65	6.20	6.65	7.10	7.55	8.00	8.50	9.00	9.80	10.70	11.75	13.00	. .			
19	3.95	4.25	4.80	5.50	6.15	6.75	7.15	7.50	8.05	8.60	9.20	9.80	10.70	11.70	12.75	13.80	. .			
20	4.20	4.45	5.20	6.00	6.60	7.15	7.60	8.00	8.75	9.50	10.25	11.00	11.80	12.60	13.60	14.70	. .			
21	4.45	4.70	5.60	6.40	6.95	7.50	8.10	8.65	9.55	10.40	11.20	12.00	12.85	13.70	14.70	15.80	. .			
22	4.70	4.95	5.90	6.85	7.45	8.00	8.70	9.40	10.30	11.20	12.10	13.00	13.60	14.20	15.60	17.00	. .			
23	4.95	5.20	6.15	7.05	7.70	8.40	9.20	9.95	11.05	12.00	13.00	14.00	15.10	16.20	17.00	18.50	. .			
24	5.15	5.40	6.35	7.30	8.05	8.80	9.65	10.45	11.55	12.70	13.90	15.10	16.30	17.50	18.75	20.00	28.50			
25	5.60	5.80	6.65	7.60	8.40	9.20	9.85	10.90	12.15	13.40	14.80	16.25	17.70	19.10	20.55	22.00	30.00			
26	6.10	6.35	7.00	7.95	8.80	9.60	10.05	11.40	12.80	14.20	15.85	17.50	19.15	20.80	22.45	24.10	31.50			
27	6.60	6.75	7.40	8.30	9.10	9.95	10.60	11.75	13.25	14.70	16.45	18.25	20.20	21.90	23.70	25.50	32.25			
28	7.10	7.20	7.80	8.60	9.45	10.30	11.20	12.10	13.70	15.25	17.10	19.00	21.00	23.00	24.95	26.90	33.00			
29	7.50	7.60	8.20	9.00	9.95	10.90	11.80	12.70	14.20	15.85	17.95	20.00	22.10	24.20	26.30	28.45	33.75			
30	8.00	8.00	8.60	9.40	10.45	11.50	12.40	13.25	14.90	16.50	18.75	21.00	23.20	25.40	27.70	30.00	34.50			
31	. .	8.40	9.00	9.85	11.05	12.20	13.15	14.15	15.65	17.20	19.55	21.85	24.25	26.60	28.85	31.15	35.40			
32	. .	8.80	9.40	10.30	11.60	12.90	13.95	15.00	16.45	17.90	20.30	22.75	25.25	27.75	30.00	32.25	36.25			
33	. .	9.20	9.95	10.90	12.30	13.70	14.85	16.00	17.50	18.95	21.45	23.60	26.25	28.85	31.10	33.40	37.00			
34	. .	9.60	10.50	11.50	13.00	14.50	15.75	17.00	18.50	20.00	22.50	24.50	27.25	30.00	32.25	34.50	38.75			
35	. .	10.10	11.20	12.25	13.75	15.25	16.65	18.05	19.65	21.25	23.50	25.50	28.35	31.20	33.45	35.75	40.10			
36	. .	10.60	11.90	13.00	14.50	16.00	17.55	19.10	20.80	22.50	24.50	26.50	29.45	32.40	34.70	37.00	41.50			
38	. .	11.50	13.00	14.50	16.00	17.60	19.15	20.70	22.70	24.75	26.60	28.50	31.50	34.50	36.90	39.25	45.00			
40	. .	12.50	14.00	16.00	17.50	19.00	20.75	22.50	24.65	26.75	28.85	31.00	33.65	36.25	38.85	41.50	48.00			

# DROP HANGERS AND FLOOR STANDS.

ADJUSTABLE, DOUBLE-BRACED, SELF-OILING.

RANGE OF DROP . . IN.	6 to 8	8½ to 10	10½ to 12	12½ to 14	14½ to 16	16½ to 18	18½ to 20	20½ to 22
Diameter of Shaft, 1½	\$2.45	2.80	3.30	3.75	4.10	. .	. .	. .
" " 1¾	2.95	3.30	3.60	4.00	4.30	. .	. .	. .
" " 1⅝	3.20	3.55	3.90	4.30	4.55	4.70	4.85	5.00
" " 1⅞	3.45	3.80	4.10	4.50	4.80	4.90	5.15	5.30
" " 1⅞	4.00	4.30	4.60	5.00	5.30	5.40	5.60	5.75

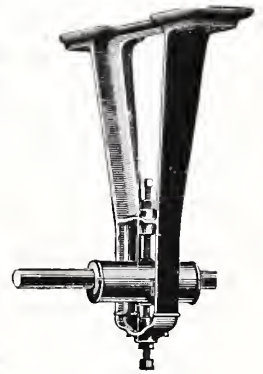


Fig. 1975.

RANGE OF DROP . . . . INCHES.	7 to 9	10 to 12	13 to 15	16 to 18	19 to 21	22 to 24	25 to 27	28 to 30	31 to 33	34 to 36
Fig. 1975. Diameter of Shaft, 1½	\$5.35	5.85	6.35	6.85	7.35	7.85	8.35	9.60	11.00	12.50
" 1975. " " 1¾	6.50	7.20	7.80	8.30	8.85	9.60	10.30	11.55	12.25	13.75
" 1975. " " 1⅝	8.10	8.60	9.25	10.00	10.75	11.60	12.40	13.75	14.50	15.25
" 1975. " " 1⅞	10.10	10.60	11.80	12.30	13.00	14.10	15.50	17.50	18.50	19.50
" 1975. " " 1⅞	12.00	12.90	13.90	14.80	15.50	16.75	18.00	20.25	21.25	22.25
" 1975. " " 1⅞	. . .	15.25	16.30	17.25	18.00	19.50	20.75	23.00	24.25	25.25
" 1975. " " 1⅞	. . .	19.50	21.00	22.25	23.25	25.00	26.50	29.00	30.50	32.00
" 1975. " " 1⅞	. . .	22.00	23.25	24.25	25.50	27.25	29.00	31.00	32.25	34.25
" 1975. " " 1⅞	. . .	24.00	25.50	26.75	27.75	29.50	31.50	33.00	35.50	37.50
" 1975. " " 1⅞	. . .	28.00	29.00	30.00	31.00	33.00	34.00	37.00	40.50	42.50
" 1975. " " 1⅞	. . .	32.50	33.00	33.75	35.00	36.50	38.50	41.00	45.50	47.50
" 1975. " " 1⅞	. . .	36.00	37.50	39.25	41.50	44.50	46.00	48.00	50.00	52.00

Quotations on extra heavy Hangers and on extra long Drops furnished on application.

## FLANGED, FACED OR PLATE COUPLINGS.

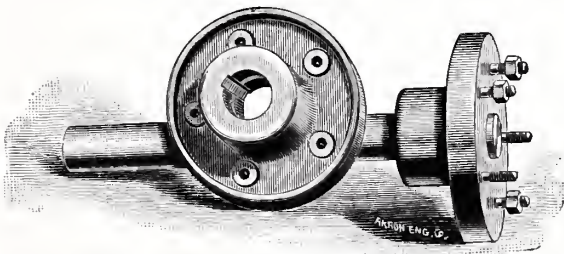


Fig. 1976.

	Diameter of Shaft.	Price.	Diameter of Shaft.	Price.
Fig. 1976 .	1½	\$6.50	1½	9.00
" 1976 .	1¾	6.75	1¾	10.50
" 1976 .	1⅝	7.00	1⅝	12.50
" 1976 .	1⅞	7.25	1⅞	15.50
" 1976 .	1⅞	7.50		

## SLIP COLLARS.

SIZE . . . . .	1½	1¾	1⅝	1⅞	1⅞	1⅞	2⅞
Fig. 1977 . . . . .	\$0.50	.60	.70	1.00	1.20	1.50	1.85



Fig. 1977.

COUPLINGS AND CIRCULAR SAWS.

COMPRESSION COUPLINGS.

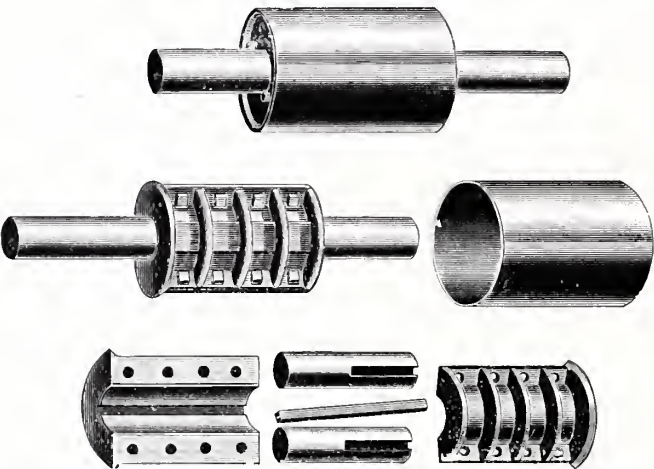


Fig. 1978.

CIRCULAR SAW.



Fig. 1979.

SIZE . . . . .	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$2\frac{3}{4}$
Fig. 1978. Key-Seated and furnished with Keys .	\$5.20	5.40	5.60	5.75	6.30	7.00	7.5

CIRCULAR SAWS—Fig. 1979.

DIAM. . . IN.	10	11	12	14	16	18	20	22	24	26	28	30	32
Gauge . . . . .	15, 16	16	14, 15	14, 15	13, 14	13	13	12	11	11	10	10	10
Hole . . . . .	$1, 1\frac{1}{2}$	1	$1, 1\frac{1}{2}$	$1, 1\frac{1}{2}$	$1, 1\frac{1}{2}$	$1\frac{1}{2}, 1\frac{1}{2}$	$1\frac{1}{2}, 1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}, 1\frac{1}{2}, 1\frac{1}{2}$	$1\frac{1}{2}, 1\frac{1}{2}$	$1\frac{1}{2}, 1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Teeth splitting	36	36	36, 40	36, 40	36, 40	30	30	30	30	30	30	30	30
“ cut off .	120	120	120	120	76	76	82	68	64	66	68	72	74
Fig. 1979, each.	\$2 30	2 65	3 00	4 50	5 50	7 00	8 50	10 00	12 00	14 50	16 00	18 00	20 00

GRINDSTONE  
FRAME.

FOR POWER.

To swing stone 30 x 4½-inch, with pulley for power, each . . . . . \$15 00

Arranged with pulley and treadle, for power and foot, each . . . . . 16 00

To swing stone 48 x 6-inch, with pulley for power, each, 50 00

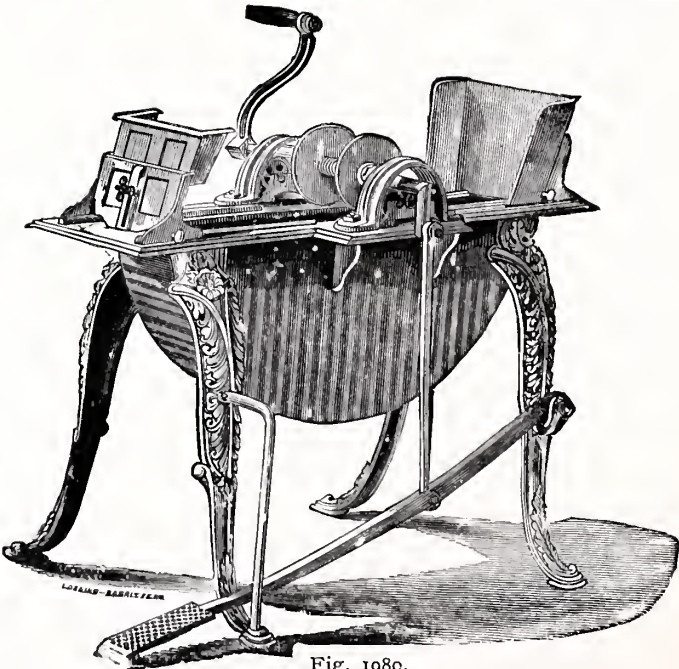


Fig. 1980.



# WOOD SAWS COMPLETE WITH TABLE.

FOR POWER USE.

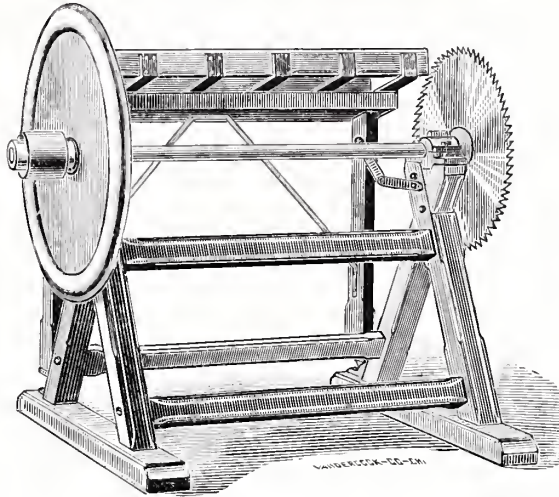


Fig. 1981.

Fig. 1981 shows Wood Saw with Swinging Table. The Table is hinged to a heavy cast iron socket that cannot become loose, and is thoroughly well made and ironed.

Price complete with 24-inch saw. . . . . \$45.00

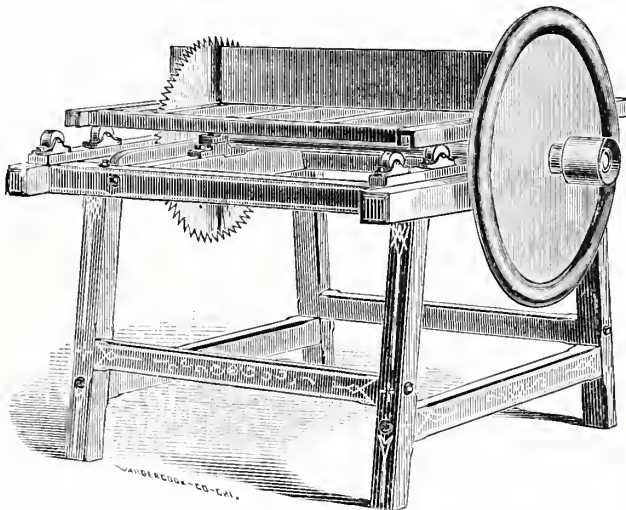


Fig. 1982.

Fig. 1982 shows Wood Saw with Sliding Table, which is one most commonly used, for sawing wood boards, etc. Like Fig. 1981, it is made in the strongest possible manner, well bolted, and adapted to rough use. The shafts are steel with extra heavy balance wheel.

Price complete with 24-inch saw. . . . . \$50.00

For different sizes of Saws, see page 686.



# QUAKER CITY GRINDING MILLS.

WITH DOUBLE REDUCTION GRINDING DISCS.

NUMBER SIX MILL.

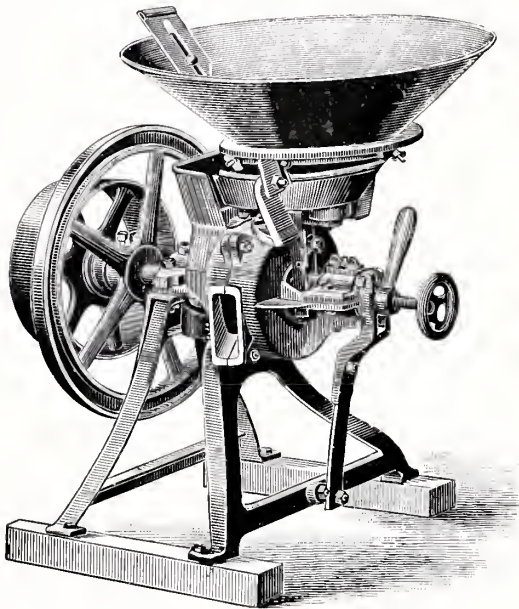


Fig. 1983.

No. 6 Mill, including Discs . . . . . \$35.00  
Extra Discs. . . . . Per pair. 1.50

Weight of Mill, 150 pounds. Speed, 400 to 800.  
Pulley, 11 x 4 inches.

Does not grind corn and cobs. Will grind from  
3 to 15 bushels per hour of shelled grain. Adapt-  
ed to from 1 to 3 horse-power.

The superiority of ground feed for all stock is no longer an experiment, but an assured fact. In the past few years this has been conclusively proven by the many experiments made at the many Agricultural Colleges in the different States, also by the Department of Agriculture at Washington, and thousands of the best cattle raisers all over the United States. These experiments have proven that ground food is by far the best and more economical, than by feeding the grain whole. This being the case it is useless for us to enter into a lengthy argument in favor of this food, as we believe that all wide-awake stock raisers are as well aware of this fact as we are, and it is useless to talk further on this subject.

You will observe that there is neither a gear wheel, belt nor band to drive the corn-cob crushing device.

All of the crushing and grinding arrangements are on the one shaft, which greatly reduces the power required. When it is necessary for a mill to have gear wheels, belts, etc., to drive the corn-cob crushing device, then you are adding more to consume the power. This is self-evident, and anyone, whether he be a mechanic or not, will agree with us.

The Quaker City Mill does the greatest amount of grinding with the least amount of power that is possible to be done on any grinding mill. To verify our statements, we have only to refer you to actual users of these mills.

Among the new additions for 1893 a thrust-ball-bearing has been adopted for back end of the spindle. All parts are hardened, reducing friction to a minimum. They can be added to the mills already out when ordered. We have applied for a patent upon this invention. Also an Elevator Sacker attachment.

When you are compelled to feed corn-cobs one ear at a time or stall the power, the mill runs too fast; put a larger pulley on the Mill or run the belt on the fly wheel of the No. 10 Mill for tread power, so you can keep the cob hopper full of ears.



Fig. 1984.

Front Side of Disc.

## DOUBLE REDUCTION GRINDING DISCS.

The first reduction is produced in the bosomed part of the disc, where the furrows run sharp cutting edge front to cut the grain fine with the least power possible.

The second reduction is produced upon the flat outer circle of furrows running their incline sides front, to mash and mellow the meal already cut fine.

The saw-toothed inner edge of the discs form a natural crusher, to reduce pieces of cob so they will pass through the mill by the aid of the conveyor-flights, which are arranged around the eye of the discs. They also draw in cool air and pass it through to cool the meal whilst grinding it.

# QUAKER CITY GRINDING MILLS.

CONTINUED.

## WITH DOUBLE REDUCTION GRINDING DISCS.

This illustration represents Nos. 10 and 13 Quaker City Mills, and the remarks on page 688 refer as well to these larger ones. The larger sizes are used extensively for grinding cob with the corn on.

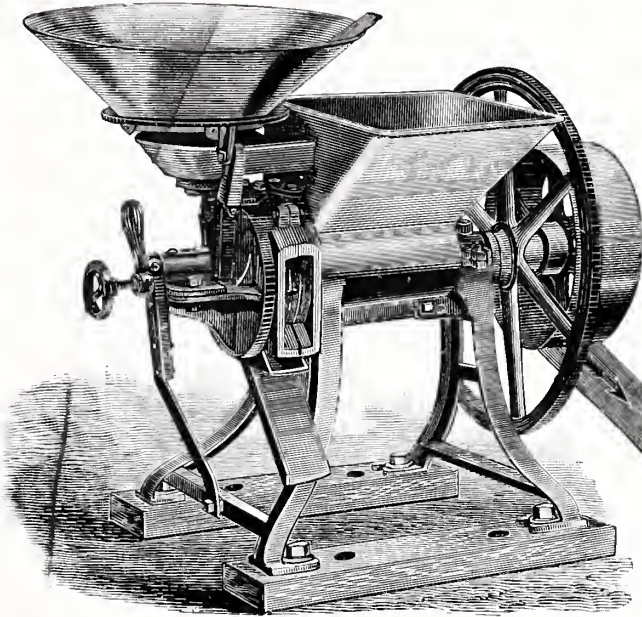


Fig. 1985.

The Cob Hopper is so formed as to invite the cob to fall at one end and slide at the other into the snail-formed case around the "drunken" circular saws, which cut the cobs into three or four sections; then the teeth on their sides saw the sections fine, and they pass through the mill with the corn.

The sliding apron is laid low so as to have the saws jar the lower end of the cobs to bring them down without bridging.

The saws are covered by the case on the up cut to prevent their throwing grain out of the mill onto the floor.

### SPEED OF MILLS.

	No. 6.	No. 10.	No. 13.
1 horse . 300 per minute.		200 per minute.	100 per minute.
2 " . 375 "		250 "	125 "
3 " . 450 "		300 "	150 "
4 " . 525 "		350 "	175 "
5 " . 600 "		400 "	200 "
6 " . 700 "		500 "	300 "
8 " . . . "		600 "	400 "
10 " . . . "		700 "	500 "
15 " . . . "		. . . "	600 "

We should be pleased to send special catalogue of these mills, also samples of grain ground by them.

With light one and two horse powers, it is best to open the mill and pass cobs through, breaking them fine as shelled corn; then close the mill and grind same as shelled corn.

No. 10 Mill . . . . . \$60.00  
" 10 Discs . . . . . 2.00

Pulley, 14 x 4. Speed, 300 to 700.  
Weight, 275 lbs. 2 to 8 horse-power.  
Height to top of hopper, 34 inches.

No. 13 Mill . . . . . \$90.00  
" 13 Discs . . . . . Per pair. 4.00

Pulley, 16 x 6. Speed, 200 to 600.  
Weight, 500 lbs. 8 to 15 horse-power.  
Height to top of hopper, 45 inches.  
Sacker Attachment, \$12.00 extra.  
10 to 40 bushels per hour.

Always have the lower belt the pulling one, and the mill 12 to 20 feet from the driving pulley. The lowest number of revolutions which will take in the quantity requires the least power.

### SECTIONAL CUT OF COB CRUSHER.



Fig. 1986.

### "DRUNKEN" SAWS.

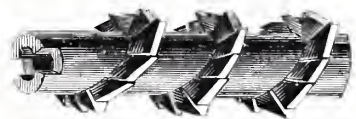


Fig. 1987.



# THE I. X. L. HAND AND POWER CORN SHELLER.

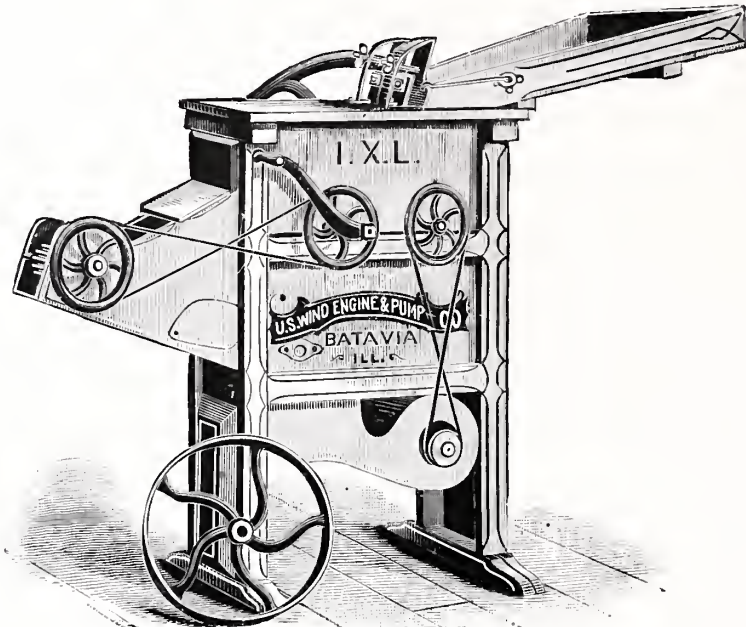


Fig. 1988.

Fig. 1988, I. X. L. Corn Sheller is adapted to run by hand, wind, steam or horse power. This Sheller is a high-grade machine, and is very effective in removing all the corn from the cob, and separating it at the same time.

	Without Fan.	With Fan.
Without Table or Band Wheel. . . . .	\$25.00	27.00
With Table, but no Band Wheel . . . . .	26.00	28.00
“ “ and Band Wheel . . . . .	28.00	30.00
“ “ Band Wheel and Self Feed Attachment. . . . .	. .	50.00

Capacity 150 bushels per day.

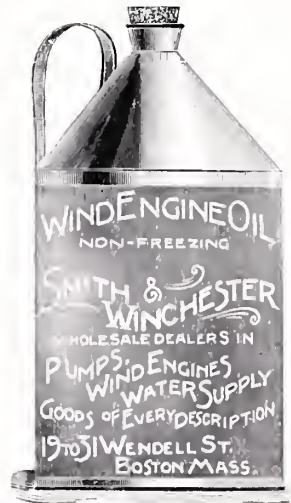


Fig. 1988 1-2.

## WIND ENGINE OIL.

Having had many calls from users of Wind Engines for a good lubricating oil that could be used both in the excessive heat of summer and extreme cold of winter, we had many tests made of the common oils on the market and found few, if any, would stand the extreme cold of our winters.

We had a leading manufactnrer in oils get up a special article, which we offer as the best for its intended purpose of any ever produced. Be sure our label is on every can. Packed in 1, 2 and 5-gallon cans. Price, \$1.00 per gallon.

TANKS.



Fig. 1989.

We can furnish, on short notice, round or square Tanks of any desired size; Pine, Cypress, Cedar or Oak. Every Tank is set up at factory and staves numbered, and if properly set up by customers, we guarantee satisfaction. The following prices are for two-inch lumber and drive hoops; add one-sixth to List for 2½-inch stock, one-third to List for 3-inch stock. Lug hoops, add \$1.00 for each lug used on hoop.

Outside Diam. of Bottom Feet.	OUTSIDE LENGTH OF STAVE.									
	SIZE . . . . . FEET.	4	5	6	7	8	9	10	11	12
4	Number of Hoops . . . . .	4	4	5	5	..	..	..	..	..
	Gallons Capacity . . . . .	246	314	382	450	..	..	..	..	..
	Approximate Weight . . . . Lbs.	340	450	570	670	..	..	..	..	..
	Price . . . . .	\$16.00	19.00	22.00	26.00	..	..	..	..	..
5	Number of Hoops . . . . .	4	4	5	5	6	7	..	..	..
	Gallons Capacity . . . . .	410	525	640	754	862	982	..	..	..
	Approximate Weight . . . . Lbs.	510	610	720	810	990	1100	..	..	..
	Price . . . . .	\$20.00	25.00	29.00	34.00	38.00	43.00	..	..	..
6	Number of Hoops . . . . .	4	4	5	5	6	7	7	..	..
	Gallons Capacity . . . . .	618	790	962	1134	1306	1478	1650	..	..
	Approximate Weight . . . . Lbs.	670	790	890	1010	1150	1260	1440	..	..
	Price . . . . .	\$26.00	30.00	34.00	38.00	42.00	46.00	50.00	..	..
7	Number of Hoops . . . . .	4	4	5	6	6	7	7	8	8
	Gallons Capacity . . . . .	968	1108	1350	1590	1834	2075	2317	2559	2800
	Approximate Weight . . . . Lbs.	780	900	1030	1180	1310	1450	1570	1720	1840
	Price . . . . .	\$32.00	35.00	38.00	43.00	47.00	52.00	57.00	63.00	69.00
8	Number of Hoops . . . . .	4	4	5	6	6	7	7	8	8
	Gallons Capacity . . . . .	1155	1481	1804	2127	2450	2773	3096	3419	3742
	Approximate Weight . . . . Lbs.	910	1110	1230	1370	1540	1710	1840	2000	2150
	Price . . . . .	\$37.00	42.00	48.00	53.00	58.00	64.00	69.00	75.00	82.00
9	Number of Hoops . . . . .	4	4	5	6	6	7	8	8	9
	Gallons Capacity . . . . .	1520	1945	2369	2793	3155	3572	3989	4406	4823
	Approximate Weight . . . . Lbs.	1120	1300	1430	1620	1780	1970	2170	2320	2560
	Price . . . . .	\$42.00	49.00	55.00	61.00	68.00	74.00	80.00	87.00	95.00
10	Number of Hoops . . . . .	4	4	5	6	6	7	8	8	9
	Gallons Capacity . . . . .	1870	2389	2908	3429	3950	4471	4992	5513	6034
	Approximate Weight . . . . Lbs.	1230	1490	1730	1860	2010	2240	2430	2650	2860
	Price . . . . .	\$50.00	56.00	63.00	71.00	78.00	84.00	91.00	98.00	106.00

For larger sizes, see next page.



TANKS—CONTINUED.

Outside Diam. of Bottom. Feet.	SIZE . . . . . FEET.	OUTSIDE LENGTH OF STAVE.										
		4	5	6	7	8	9	10	11	12	14	16
II	Number of Hoops . .	4	4	5	6	6	7	8	8	9	. .	. .
	Gallons Capacity . .	2410	3050	3690	4330	4880	5630	6280	6730	7380	. .	. .
	Approx. Weight, lbs.	1460	1670	1890	2150	2370	2610	2790	2960	3190	. .	. .
	Price . . . . .	\$56.00	63.00	71.00	80.00	88.00	95.00	104.00	113.00	122.00	. .	. .
I2	Number of Hoops . .	4	4	5	6	6	7	8	8	9	. .	. .
	Gallons Capacity . .	2752	3520	4288	5056	5824	6590	7360	8128	8896	. .	. .
	Approx. Weight, lbs.	1630	1840	2010	2340	2600	2810	3050	3220	3430	. .	. .
	Price . . . . .	\$63.00	71.00	80.00	89.00	98.00	108.00	118.00	130.00	140.00	. .	. .
I4	Number of Hoops . .	4	4	5	6	6	7	8	8	9	11	. .
	Gallons Capacity . .	3799	4847	5900	6960	8020	9075	10132	11190	12247	13500	. .
	Approx. Weight, lbs.	2080	2350	2560	2880	3190	3380	3770	4000	4340	4940	. .
	Price . . . . .	\$80.00	88.00	96.00	110.00	125.00	140.00	155.00	168.00	180.00	200.00	. .
I6	Number of Hoops . .	4	4	5	6	6	7	8	8	9	11	13
	Gallons Capacity . .	5000	6400	7796	9192	10588	11985	13380	14776	16172	17900	20615
	Approx. Weight, lbs.	2500	2810	3080	3370	3740	4050	4370	4630	5090	5940	6730
	Price . . . . .	\$93.00	105.00	118.00	135.00	152.00	165.00	180.00	198.00	218.00	240.00	275.00
I8	Number of Hoops . .	4	4	5	6	6	7	8	8	9	11	13
	Gallons Capacity . .	6377	8157	9937	11717	13497	15277	17057	18837	20617	23000	26400
	Approx. Weight, lbs.	2990	3140	3640	4140	4410	4780	5170	5490	5880	6860	7940
	Price . . . . .	\$108.00	122.00	145.00	163.00	178.00	200.00	223.00	243.00	265.00	290.00	330.00
20	Number of Hoops . .	4	4	5	6	6	7	8	9	9	11	13
	Gallons Capacity . .	7936	10150	12366	14581	16796	19011	21226	23441	25656	29500	33400
	Approx. Weight, lbs.	3500	3910	4260	4660	5000	5450	5860	6220	6720	7800	8990
	Price . . . . .	\$125.00	148.00	175.00	196.00	215.00	245.00	265.00	290.00	315.00	345.00	385.00
22	Number of Hoops . .	4	4	5	6	6	7	8	9	9	11	13
	Gallons Capacity . .	9500	12100	14000	17350	19500	22000	24700	27300	30000	35200	40400
	Approx. Weight, lbs.	4090	4490	4870	5330	5810	6260	6720	7300	7700	8680	9790
	Price . . . . .	\$150.00	170.00	190.00	220.00	245.00	270.00	295.00	320.00	345.00	380.00	415.00
24	Number of Hoops . .	4	4	5	6	6	7	8	9	9	11	13
	Gallons Capacity . .	11100	14250	17460	20600	23600	26800	29700	32800	35600	43000	49500
	Approx. Weight, lbs.	4650	5030	5500	5960	6480	6970	7580	8010	8470	9680	11200
	Price . . . . .	\$175.00	195.00	220.00	250.00	280.00	305.00	330.00	355.00	375.00	405.00	440.00

To find a Tank of any desired dimensions, find the diameter of bottom in large figures, first column; the length of stave, over the table; number of hoops, capacity, approximate weight, and price in each square. Hoops, increase in width and thickness according to size of tanks. Weight and prices given upon 2-inch stock; for 2½-inch, add one-sixth; for 3-inch, add one-third to weight and price.

Tanks are shipped knockdown. Price does not include lug hoops. All are with riveted hoops; lugs extra.

## TANK FIXTURES.

IMPROVED VALVE, OUTLET PIPE, GALVANIZED SPOUT AND FIXTURES.

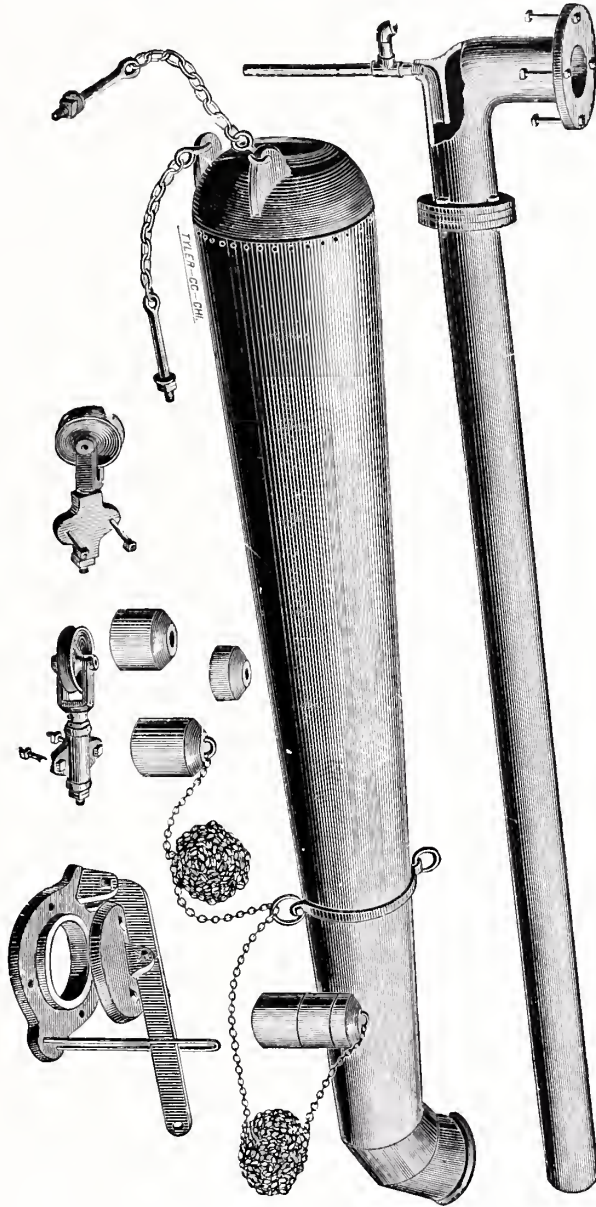


Fig. 1990.

The above cut represents our Improved Tank Fixtures, which are strictly frost-proof.  
We furnish these in three sizes—6, 7 and 8-inch.

	6-in.	7-in.		
Fixtures for 16-feet diam. Tank .	\$65.00	75.00	Tank Float Valves, for 1½-in. pipe . . . .	\$1.00
“ “ 20 “ “ .	70.00	80.00	“ “ “ “ 1½ “ “ . . . .	1.25
“ “ 24 “ “ .	75.00	85.00	“ “ “ “ 2 and 2½-in. pipe .	4.00
“ “ 30 “ “ .	82.50	92.50	“ “ “ “ 3-in. pipe . . . .	5.00
Tank Outlet Valves. . . . .	12.00	15.00	“ “ “ “ 4 “ “ . . . .	7.50

# IRON VALVES, STRAINERS, AIR CHAMBERS, ETC.

OUTLET TANK VALVE.

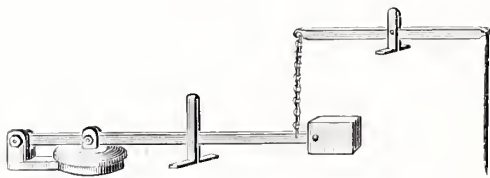


Fig. 1991.

SIZE . . . . . INCHES.	1	1½	1½	2	2½	3
Fig. 1991 . . . . .	\$1.50	1.75	2.00	2.25	2.50	5.00
" 1992 . . . . .	.60	.75	.90	1.25	. .	. .

OUTLET OF FLOAT TANK VALVE.



Fig. 1992.

ENTERPRISE TANK OR FLOAT VALVE.

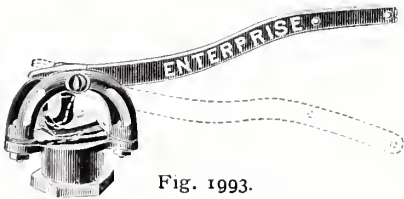


Fig. 1993.

SIZE . . . . INCHES.	¾	1	1½	1½	2	2½	3
Fig. 1993 . . . . .	\$1.25	1.38	1.50	3.00	5.00	7.50	10.00

By reversing the lever a perfect working Outlet Valve is had.

OUTLET VALVE.



Fig. 1994.

To go on end of supply pipe for shutting water into tank.

TANK CHECK VALVE.



Fig. 1995.

To put in tank on ends of supply pipe, for relieving pressure on the pump.

SIZE . . . . . INCHES.	¾	1	1½	1½	2	2½	3	3½	4
Fig. 1994 . . . . .	\$0.80	.90	1.00	1.25	4.00	4.50	5.00	6.00	6.00
" 1995 . . . . .	.75	.75	.90	1.00	2.25	2.25	2.75	3.25	3.25
" 1996 . . . . .	. .	2.00	2.00	2.50	2.50	. .	. .	. .	. .

BRASS OUTLET VALVE.



Fig. 1996.

To go on end of supply pipe for shutting water into tank.



Fig. 1997.

SUCTION PIPE STRAINERS.

SIZE. . IN.	1	1½	1½	2
Fig. 1997 . . . . .	\$0.70	.75	.80	.90

Galvanized Strainer covered with wire gauze; perfectly non-corroding.

CAST ANCHOR LUG.

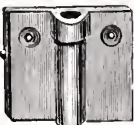


Fig. 1998.

For anchoring down Wind Mill Towers. Fig. 1998.

Light, per set, ¾ and 1-in.	\$3.00
Medium " 1 " 1 " "	4.00
Heavy " 1 " 1½ " "	5.00
Ex. Heavy " 1½-in.	6.00

Order by this Catalogue Figure Number, stating size wanted.

# IRON VALVES, STRAINERS, AIR CHAMBERS, ETC.—CONTINUED.

## TRIANGLES.

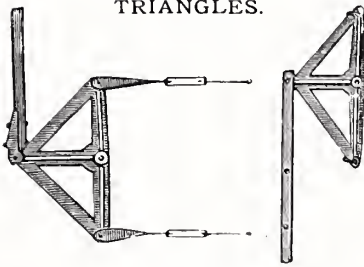


Fig. 1999.

For conveying the power of a pumping windmill to a pump at a distance from the tower.

Fig. No.		Price.
1999.	Light, per set of four each. . . . .	\$6.00
1999.	Medium " " " . . . . .	7.50
1999.	Heavy " " " . . . . .	9.00

## GALVANIZED PIPE TANK CONNECTION.



Fig. 2000.

$\frac{1}{2}$ -inch.	\$0.30	$1\frac{1}{4}$ -inch.	\$0.60	$2\frac{1}{2}$ -inch.	\$1.50
$\frac{3}{4}$ "	.40	$1\frac{1}{2}$ "	.80	3 "	2.00
1 "	.50	2 "	1.00	$3\frac{1}{2}$ "	2.50

Length, 12 inches. Thread on long end, six inches. Price includes locknuts and washers.

## CHECK VALVES.

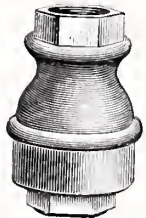


Fig. 2001.

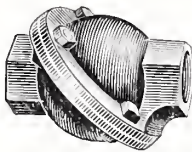


Fig. 2002.

## CHECK WITH BRASS SEAT.



Fig. 2003.



Fig. 2004.

## CHECK VALVES.



Fig. 2005.



Fig. 2006.

## FOOT VALVES.



Fig. 2007.



Fig. 2008.



Fig. 2009.



Fig. 2010.

## STRAINERS.



Fig. 2011.



Fig. 2012.

Order by this Catalogue Figure Number, stating size wanted.



IRON VALVES, STRAINERS, AIR CHAMBERS, ETC. — CONTINUED.

STRAINERS.

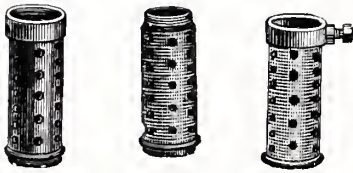


Fig. 2013.    Fig. 2014.    Fig. 2015.

AIR CHAMBERS.

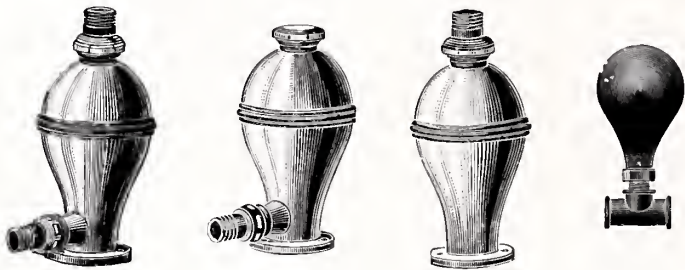


Fig. 2016.    Fig. 2017.    Fig. 2018.    Fig. 2019.

SIZE . . . . . INCHES.		$\frac{3}{4}$	1	1 $\frac{1}{4}$	1 $\frac{1}{2}$	2	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5	6	8	10
		\$													
Fig. 2001.	Plain . . . . .	1.75	2.00	2.25	2.50	3.00	3.50	4.50							
" 2001.	Galvanized . . . . .	2.50	2.75	3.00	3.50	4.00	4.75	6.00							
" 2002.	Plain . . . . .	1.00	1.20	1.40	1.75	3.00									
" 2002.	Galvanized . . . . .	2.00	2.20	2.65	3.00	4.50									
" 2003.	Plain . . . . .		1.50	1.75	2.00	2.25	2.50								
" 2004.	" . . . . .							7.00	8.50	10.00	12.00	15.00			
" 2005.	" . . . . .					4.25	5.00	6.00	7.25	8.75	10.50	12.75	16.00		
" 2006.	" . . . . .	1.50	1.75	2.00	2.50	3.00	4.25								
" 2006.	Galvanized . . . . .	2.50	2.75	3.25	3.75	4.25	5.50								
" 2007.	Plain . . . . .	1.75	2.00	2.25	2.50	3.00	3.50	4.50							
" 2007.	Galvanized . . . . .	2.50	2.75	3.00	3.50	4.00	4.75	6.00							
" 2008.	Plain . . . . .	1.25	1.25	1.50	1.75	2.25	2.75	4.00	7.50	10.00		13.00	24.00	40.00	72.00
" 2008.	Galvanized . . . . .	1.75	1.75	2.00	2.50	3.00	3.50	5.40	9.00	12.00		15.00	30.00	60.00	120.00
" 2008.	Flanged, Plain . . . . .							4.50	6.00	7.20	10.00	16.00			
" 2008.	" Galv. . . . .							7.00	9.00	11.00	15.00	24.00			
" 2009.	Plain . . . . .					4.00	4.75	5.75	7.00	8.50	10.00	12.00	15.00		
" 2010.	" . . . . .					4.75	5.75	7.00	8.50	10.00	12.00	15.00			
" 2011.	" . . . . .	.40	.50	.75	.90	1.15	1.25	1.75	2.50	3.25		4.25	5.50		
" 2011.	Galvanized . . . . .	.90	1.00	1.25	1.75	2.50	2.75	3.25	3.50	4.50		5.75	7.50		
" 2012.	Plain . . . . .		.70	.75	.90	1.15	1.25	1.75							
" 2012.	Galvanized . . . . .		1.25	1.50	1.75	2.00	2.25	3.00							
" 2013.	Plain . . . . .		.40	.50	.75	1.00	1.50	2.00							
" 2013.	Galvanized . . . . .		.50	.75	1.00	1.50	2.00	2.50							
" 2013.	Galv. and Cov'd . . . . .		.75	1.00	1.50	2.00	2.50	3.00							
" 2014.	Plain . . . . .		.40	.50	.75	1.00	1.50	2.00							
" 2014.	Galvanized . . . . .		.50	.75	1.00	1.50	2.00	2.50							
" 2014.	Galv. and Cov'd . . . . .		.75	1.00	1.50	2.00	2.50	3.00							
" 2015.	Plain . . . . .		.50	.60	.85	1.10	1.65	2.25							
" 2015.	Galvanized . . . . .		.60	.85	1.10	1.65	2.25	2.75							
" 2015.	Galv. and Cov'd . . . . .		.85	1.10	1.65	2.25	2.75	3.25							

Fig. 2016 . . . . .	\$2.50
" 2017 . . . . .	2.00
" 2018 . . . . .	2.00

These fit our Hand and House Force Pumps.

SIZE PIPE . . . . . INCHES.	$\frac{3}{4}$	1	1 $\frac{1}{4}$
Fig. 2019 . . . . .	\$2.00	3.00	5.00

We can make Air Chambers of pipe, any size or height, and will name prices on application.  
Order by this Catalogue Figure Number, stating size wanted.

# IRON BODY FOOT VALVES.

LUDLOW VERTICAL FOOT VALVE.

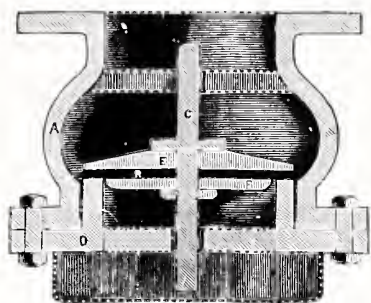


Fig. 2020.

8-inch and under.

LUDLOW FOOT VALVE.

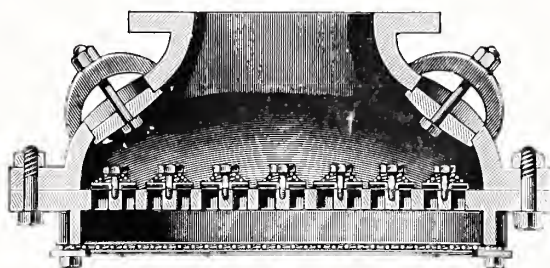


Fig. 2021.

Above 10-inch.

FOOT VALVES.				MEASUREMENTS IN INCHES.				
Size Inches.	Screw Socket.	Flange.	Hub.	Diameter of Standard Flange.	Face of Screw Socket to Strainer.	Face of Flange to Strainer.	End of Hub to Strainer.	Depth of Hubs.
2	\$11.50	11.75	. .	6½	9½	8	10½	2¼
2½	12.00	12.25	. .	7	9½	8½	10½	2¼
3	16.25	16.25	. .	8	11	9½	12½	2½
4	20.00	20.00	. .	9	12½	11½	13½	2½
5	26.25	25.75	. .	10	14½	13½	16½	3½
6	33.00	32.50	33.25	11	15½	14½	17½	3½
7	38.50	38.00	39.00	. .	. .	. .	. .	. .
8	44.75	43.50	46.50	13	15½	14½	18½	4¼
10	82.00	82.00	83.00	16	. .	10	13½	4½
12	113.00	112.00	113.00	18	. .	11	14½	4½
14	. .	145.00	147.00	21	. .	12½	16½	4½
16	. .	190.00	193.00	23	. .	13½	17½	4½
18	. .	235.00	238.00	25	. .	13½	18½	4½
20	. .	265.00	268.00	27	. .	15½	20½	5
24	. .	400.00	405.00	31	. .	16½	22½	5½
30	. .	780.00	790.00	38	. .	21	27	6

The Bolts, Springs and Plates in Valve Fig. 2021 are Brass.

IRON BODY FOOT VALVES — CONTINUED.

FOOT VALVE.

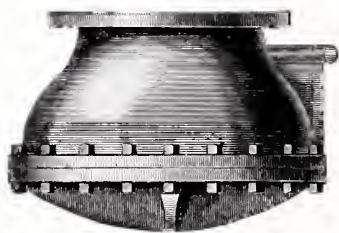


Fig. 2022.

FOOT VALVE AND STRAINER.

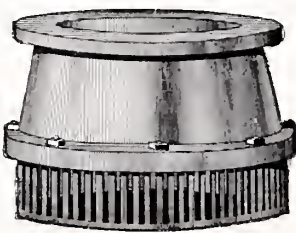


Fig. 2023.

SIZE . . . . . INCHES.	3	4	5	6	8	10	12	14	16	18	20	24	30
Diameter of Flange . . .	8	9	10	11	13	16	18	21	23	25	27	31	38
Fig. 2022 . . . . .	\$6.00	8.00	11.00	13.00	26.00	33.00	43.00	56.00	80.00	135.00	160.00	210.00	320.00

SIZE . . . . . INCHES.	1½	2	2½	3	3½	4	5	6	8	10	12	15	18
Fig. 2023 . . . . .	\$5.00	7.00	8.00	9.00	11.00	12.00	15.00	20.00	30.00	40.00	50.00	75.00	110.00

GALVANIZED WROUGHT IRON STRAINERS.

For Pump Suctions. Fitted with Flange, Socket and Nipple Joints, suitable for Welded, Cast Iron and Spiral Pressure Pipes.

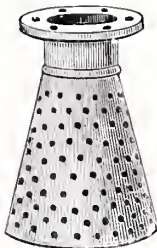


Fig. 2024.



Fig. 2025.



Fig. 2026.

Diameter Suction Pipe.	Screw Nipple Joint.	Flange or Socket Joint.	Diameter Suction Pipe.	Screw Nipple Joint.	Flange or Socket Joint.	Diameter Suction Pipe.	Screw Nipple Joint.	Flange or Socket Joint.
½-inch.	\$0.60	.65	2½-inch.	\$2.85	3.40	7-inch.	. .	\$11.45
¾ " "	.75	.75	3 " "	3.45	4.25	8 " "	. .	14.90
1 " "	.85	.95	3½ " "	4.60	5.15	9 " "	. .	20.60
1¼ " "	1.15	1.25	4 " "	5.75	6.65	10 " "	. .	23.00
1½ " "	1.45	1.60	5 " "	6.85	8.00	11 " "	. .	26.30
2 " "	2.00	2.25	6 " "	8.00	9.75	12 " "	. .	28.60

The area of the perforations in each strainer exceeds the area of the suction pipe, and gives full supply of water to the pump.

In ordering, state whether Flange, Socket or Nipple connections; if former, give outside measurement of Flange, and if required drilled, send Template. Larger diameters to order.

Order by this Catalogue Figure Number, stating size wanted.

# GLOBE SPECIAL CASTINGS.

FOR WATER WORKS, MILLS AND RAILROADS.

GLOBE TEE.

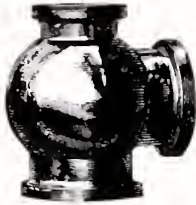


Fig. 2027.

ELBOW.

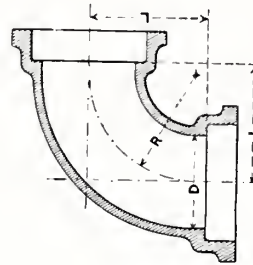


Fig. 2028.

SHORT ELBOWS.				REDUCERS.		CROSSES.		BRANCHES.	
D	R	L	Price.	Size in Inches.	Price.	Size in Inches.	Price.	Size in Inches.	Price.
12	8	10	\$12.50	24 to 20	\$24.00	14 x 14 x 14 x 14	\$25.00	14 x 14 x 14	\$24.00
10	6	8	8.75	24 " 18	25.00	14 14 12 12	23.00	14 14 12	22.00
8	6	8	5.60	24 " 16	26.00	14 14 10 10	21.00	14 14 10	20.00
6	6	6	3.75	20 " 16	20.00	14 14 8 8	19.00	14 14 8	17.50
4	4	4	2.25	18 " 16	12.50	14 14 6 6	17.50	14 14 6	16.50
3	4	4	1.25	18 " 12	14.00	14 14 4 4	16.50	14 14 4	15.50
..	..	..	..	16 " 14	10.50				
..	..	..	..	16 " 12	11.50	12 12 12 12	18.50	12 12 12	17.00
..	..	..	..	16 " 10	14.50	12 12 10 10	16.00	12 12 10	15.00
..	..	..	..	14 " 12	8.50	12 12 8 8	14.00	12 12 8	13.00
..	..	..	..	14 " 10	9.75	12 12 6 6	12.00	12 12 6	11.00
..	..	..	..	12 " 10	6.00	12 12 4 4	11.00	12 12 4	10.50
..	..	..	..	12 " 8	7.50				
..	..	..	..	12 " 6	8.25	10 10 10 10	13.00	10 10 10	12.00
..	..	..	..	10 " 8	4.75	10 10 8 8	12.00	10 10 8	10.50
..	..	..	..	10 " 6	5.75	10 10 6 6	10.00	10 10 6	9.00
..	..	..	..	8 " 6	3.50	10 10 4 4	8.50	10 10 4	8.00
..	..	..	..	8 " 4	4.25			10 8 8	10.00
..	..	..	..	6 " 4	2.50	8 8 8 8	9.00		
..	..	..	..	6 " 3	2.75	8 8 6 6	7.50	8 8 8	8.00
..	..	..	..	4 " 3	1.25	8 8 4 4	6.50	8 8 6	7.00
..	..	..	..	4 " 2	1.50	8 8 3 3	5.50	8 8 4	6.00
..	..	..	..	..	..			8 6 6	5.60
..	..	..	..	..	..	6 6 6 6	6.00		
..	..	..	..	..	..	6 6 4 4	5.25	6 6 8	6.50
..	..	..	..	..	..	6 6 3 3	5.00	6 6 6	5.00
..	..	..	..	..	..			6 6 4	4.50
..	..	..	..	..	..	4 4 4 4	3.50	6 6 3	4.25
..	..	..	..	..	..	4 4 3 3	3.25	6 4 6	5.00
..	..	..	..	..	..			6 4 4	4.25
..	..	..	..	..	..	3 3 3 3	3.00		
..	..	..	..	..	..	..	..	4 4 6	4.50
..	..	..	..	..	..	..	..	4 4 4	3.25
..	..	..	..	..	..	..	..	4 4 3	2.75
..	..	..	..	..	..	..	..		
..	..	..	..	..	..	..	..	3 3 3	2.25

For Reducer Branches, add 10 per cent. to price.



CAST IRON PIPE FOR WATER AND GAS.

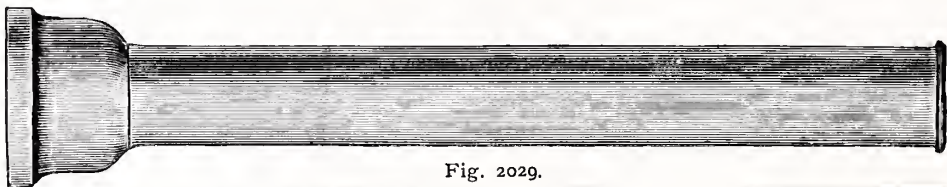


Fig. 2029.

Diameter.	GAS PIPE.		WATER PIPE.							
			43 lbs. Pressure.		86 lbs. Pressure.		130 lbs. Pressure.		Lead per Joint. Pounds.	Hemp per Joint. Ounces.
	Thickness.	Weight.	Thickness.	Weight.	Thickness.	Weight.	Thickness.	Weight.		
1½	.31	36	.31	36	.31	36	.31	36	1½	1½
2	.31	48	.37	75	.38	78	.39	81	1¾	2
3	.31	132	.38	167	.40	177	.42	186	4	6
4	.38	186	.40	230	.42	243	.45	260	5½	7
5	.40	240	.42	295	.45	315	.48	338	6½	8
6	.40	300	.43	364	.47	393	.51	426	8	9
8	.44	456	.46	513	.51	567	.56	624	11	11
10	.44	600	.50	685	.56	765	.62	852	15	13
12	.46	696	.53	870	.60	985	.68	1110	18	18
14	.53	960	.56	1074	.65	1229	.73	1399	22	20
16	.56	1200	.60	1293	.69	1496	.79	1723	24	22
18	.63	1500	.63	1532	.74	1788	.85	2065	26	24
20	.63	1680	.66	1788	.78	2104	.91	2444	28	28
24	.73	2359	.75	2407	.87	2803	1.02	3290	32	32
30	.84	3300	.87	3482	1.01	4027	1.19	4783	38	38
36	.95	4500	.98	4699	1.14	5460	1.36	6543	50	44
40	1.05	5400	1.09	5807	1.23	6525	1.48	7858	..	..
42	1.07	5700	1.10	6147	1.28	7100	1.54	8568	..	..
48	1.15	7200	1.25	7982	1.41	8946	1.71	10857	..	..

Weights based on 12-foot lengths, including hub. 1½ and 2-inch, only 8 foot long.

REGULAR CAST IRON PIPE FITTINGS.

CROSSES.

Size.	Weight.	Size.	Weight.
3x 3x 3x 3 . . . . .	84	10x10x 4x 4 . . . . .	375
4x 4x 4x 4 . . . . .	152	12x12x12x12 . . . . .	890
6x 6x 6x 6 . . . . .	360	12x12x10x10 . . . . .	690
6x 6x 4x 4 . . . . .	210	12x12x 8x 8 . . . . .	600
8x 8x 8x 8 . . . . .	390	12x12x 6x 6 . . . . .	580
8x 8x 6x 6 . . . . .	355	12x12x 4x 4 . . . . .	480
8x 8x 4x 4 . . . . .	265	16x16x16x16 . . . . .	1380
10x10x10x10 . . . . .	525	20x20x20x20 . . . . .	1875
10x10x 8x 8 . . . . .	520	24x24x24x24 . . . . .	2300
10x10x 6x 6 . . . . .	450		

ELBOWS.

Size.	Weight.	Size.	Weight.
3 . . . . .	44	12 . . . . .	412
4 . . . . .	90	16 . . . . .	740
6 . . . . .	178	20 . . . . .	1218
8 . . . . .	195	24 . . . . .	2000
10 . . . . .	315	30 . . . . .	2500

PLUGS.

Size.	Weight.	Size.	Weight.
3 . . . . .	4	10 . . . . .	40
4 . . . . .	7	12 . . . . .	71
6 . . . . .	15	16 . . . . .	100
8 . . . . .	22		

SLEEVES.

Size.	Weight.	Size.	Weight.
3 . . . . .	28	16 . . . . .	305
4 . . . . .	36	20 . . . . .	385
6 . . . . .	65	24 . . . . .	525
8 . . . . .	110	30 . . . . .	775
10 . . . . .	155	36 . . . . .	1000
12 . . . . .	190		

We can furnish all sizes and reductions in specials, from 2 to 36 inches. The above weights are not given as standard, but simply for the purpose of estimating.

TEES.

Size.	Weight.	Size.	Weight.
3x 3x 3 . . . . .	65	10x10x 4 . . . . .	300
4x 4x 4 . . . . .	115	12x12x12 . . . . .	635
6x 6x 6 . . . . .	150	12x12x10 . . . . .	461
6x 6x 4 . . . . .	185	12x12x 8 . . . . .	455
8x 8x 8 . . . . .	290	12x12x 6 . . . . .	460
8x 8x 6 . . . . .	260	12x12x 4 . . . . .	450
8x 8x 4 . . . . .	260	16x16x16 . . . . .	1000
10x10x10 . . . . .	450	20x20x20 . . . . .	1440
10x10x 8 . . . . .	440	24x24x24 . . . . .	1875
10x10x 6 . . . . .	382		

REDUCERS.

Bell large end always sent unless specially ordered with bell on small end.

Size.	Weight.	Size.	Weight.
4x3 . . . . .	55	10x 4 . . . . .	180
6x4 . . . . .	105	12x10 . . . . .	345
8x6 . . . . .	170	12x 8 . . . . .	240
8x4 . . . . .	115	12x 6 . . . . .	200
10x8 . . . . .	220	16x12 . . . . .	375
10x6 . . . . .	150	24x20 . . . . .	914

45° ELBOWS.

Size.	Weight.	Size.	Weight.
3 . . . . .	38	12 . . . . .	325
4 . . . . .	72	16 . . . . .	560
6 . . . . .	112	20 . . . . .	1170
8 . . . . .	250	24 . . . . .	1450
10 . . . . .	270	30 . . . . .	2200

Y BRANCHES.

All sizes from . . . . . 4 to 36 inches.

SPLIT SLEEVES.

All sizes from . . . . . 4 to 24 inches.

# PRESSURE PIPE.

DOUBLE GALVANIZED — SPIRAL RIVETED — FLANGED.

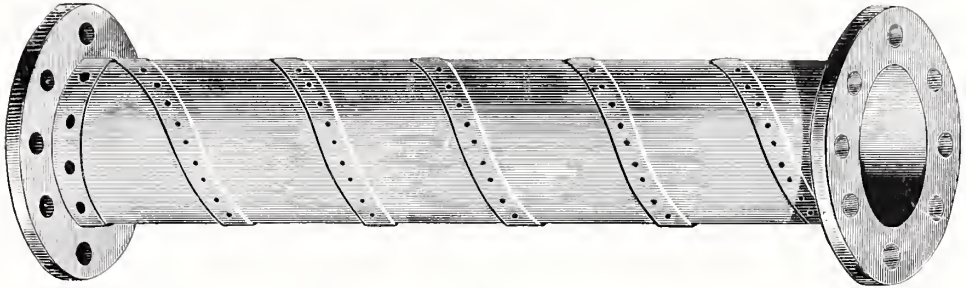


Fig. 2030.

Made of Galvanized Iron and regalvanized after formation, thereby making all seams and laps perfectly solid.

Each length tested to 150 pounds Hydraulic Pressure.

Inside Diameter in Inches.	LENGTH.	Thickness Birmingham Gauge.	Nominal Weight. Per Foot.	Price per Lineal Foot, including Flanges.
3	20 Feet and less.	No. 20	2½ lbs.	\$0.50
4	20 " " "	" 20	3 "	.70
5	20 " " "	" 20	4 "	1.00
6	20 " " "	" 18	5 "	1.20
7	20 " " "	" 18	6 "	1.40
8	20 " " "	" 18	7 "	1.70
9	20 " " "	" 18	8 "	2.00
10	20 " " "	" 16	11 "	2.60
11	20 " " "	" 16	12 "	2.85
12	20 " " "	" 16	14 "	3.15
13	20 " " "	" 16	15 "	3.60
14	20 " " "	" 14	20 "	4.00
15	20 " " "	" 14	22 "	4.40
16	20 " " "	" 14	24 "	5.15
18	20 " " "	" 14	29 "	6.40
20	20 " " "	" 14	34 "	7.95
22	20 " " "	" 12	40 "	10.00
24	20 " " "	" 12	50 "	12.00

Pipe and Fittings gotten out to specifications and drawings when desired. Where lengths required are all five feet or less, they are charged as being five feet each.

# HAND SUCTION OR BILGE PUMPS.

## GALVANIZED WROUGHT IRON — SPIRAL.

SOLDERED JOINTS.

SCREW JOINTS FOR SECTIONAL PUMPS.



Fig. 2031.

Our Pumps combine great strength as compared with the ordinary hand-made article, and as the entire suction tube is constructed of but one piece of tube, without joints, its superiority over any other pump is apparent.

Pumps made to any special design without extra charge. Parties are cautioned against using the Spiral Leader for pump barrels, as all our pump stock is prepared expressly for pump purposes.

INSIDE DIAMETER . . . IN.	*1½	2	2½	3	3½	4	*4½	5
Soldered Joints, Per lin. Ft.	\$.55	.60	.65	.70	.75	.80	.90	1.20

\*Hand-made. For price of Screw Joint Pumps, add net price of couplings required. Pumps shorter in length than five feet, charged as five feet.

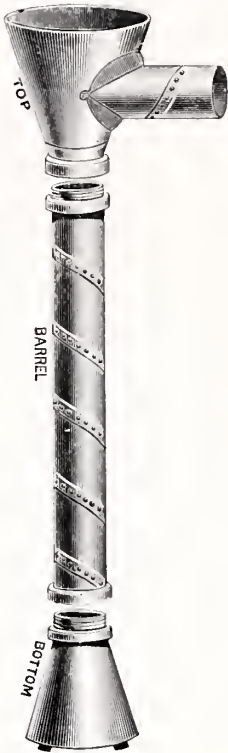


Fig. 2032.

## PARTS OF HAND SUCTION OR BILGE PUMPS.

LEATHER PLUNGER.

HANDLE.

VALVE, DOUBLE CLAPPER.

VALVE, SINGLE CLAPPER.



Fig. 2033.



Fig. 2034.

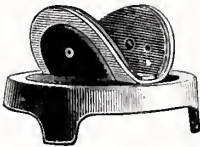


Fig. 2035.



Fig. 2036.

SIZE . . . . . INCHES.	1½	2	2½	3	3½	4	4½	5	5½
Galvanized Iron Barrel . . . Per Foot.	\$.12	.14	.17	.20	.22	.26	.30	.33	.38
Fig. 2033. Leather Plungers . . . Each.	.20	.20	.26	.30	.36	.42	.56	.66	. .
“ 2034. Handles . . . . . “	.15	.15	.15	.15	.15	.15	.15	.15	. .
“ 2035. Valve, Double Clapper, “	. .	. .	. .	. .	. .	. .	.75	.90	1.05
“ 2036. “ Single “	.21	.21	.25	.34	.42	.50	. .	. .	. .
Composition, Screw Couplings . Per pair.	. .	1.40	1.65	2.25	2.50	3.00	3.50	4.00	. .

Rods for all sizes, per foot, 5 cents.



# PELTON WATER MOTOR.

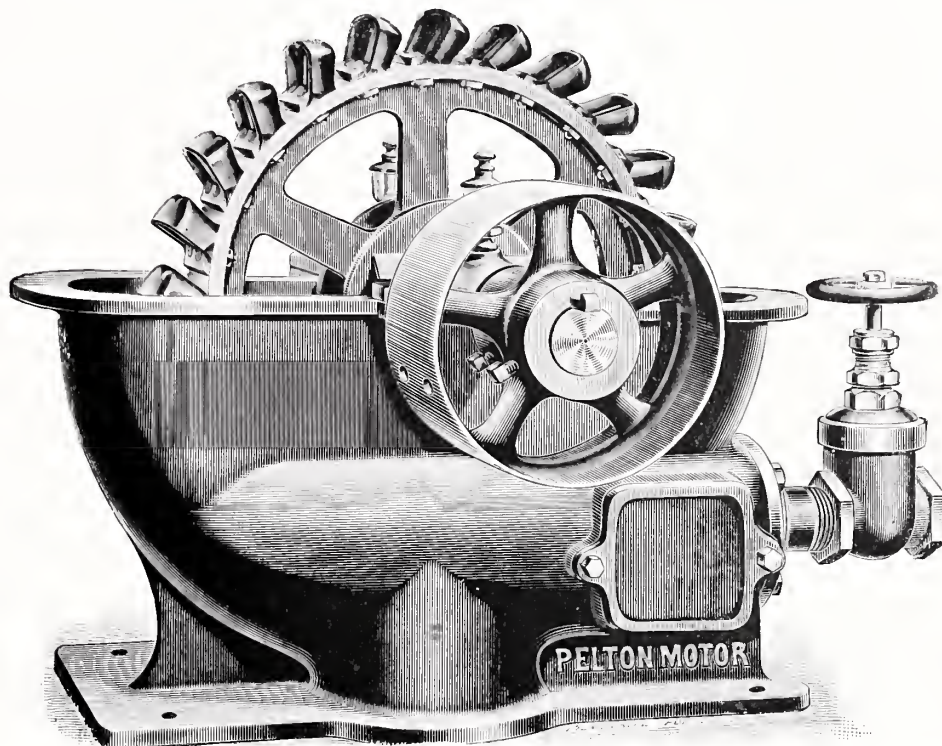


Fig. 2037.

Head or Size of Pressure Motors.		No. 1. 6-in. Wheel.	No. 2. 12-in. Wheel.	No. 3. 18-in. Wheel.	No. 4. 18-in. Wheel.	No. 5. 24-in. Wheel.
90 Feet	Horse-Power	.51	1.20	2.03	3.60	6.39
or	Cubic Feet	3.55	8.29	14.05	24.88	44.19
39 Lbs.	Revolutions	1452	726	484	484	363
140 Feet	Horse-Power	.99	2.33	3.94	6.99	12.41
or	Cubic Feet	4.43	10.34	17.53	31.03	55.11
60 Lbs.	Revolutions	1812	906	604	604	453
190 Feet	Horse-Power	1.57	3.68	6.24	11.05	19.63
or	Cubic Feet	5.16	12.04	20.41	36.14	64.20
82 Lbs.	Revolutions	2106	1053	702	702	527
230 Feet	Horse-Power	2.10	4.90	8.31	14.72	26.15
or	Cubic Feet	5.68	13.25	22.46	39.77	70.64
100 Lbs.	Revolutions	2319	1159	773	773	580
290 Feet	Horse-Power	2.97	6.94	11.77	20.84	37.02
or	Cubic Feet	6.38	14.88	25.23	44.66	79.32
126 Lbs.	Revolutions	2607	1303	869	869	651
350 Feet	Horse-Power	3.94	9.21	15.61	27.64	49.09
or	Cubic Feet	7.00	16.35	27.71	49.06	87.14
152 Lbs.	Revolutions	2865	1432	955	955	716

No. 0 Motor.	\$20, weight,	20 pounds,	4-inch wheel,	pulley 2 inches diameter,	$\frac{1}{4}$ -inch V groove.
" 1 "	30, " "	30 " "	6 " "	3 " "	$\frac{1}{2}$ " " V " "
" 2 "	60, " "	110 " "	12 " "	4 " "	x 4 -inch face.
" 3 "	125, " "	320 " "	18 " "	5 " "	x 4 $\frac{1}{2}$ " "
" 4 "	175, " "	370 " "	18 " "	6 " "	x 5 " "
" 5 "	275, " "	650 " "	24 " "	8 " "	x 8 $\frac{1}{2}$ " "

See that the supply pipe is of sufficient capacity to ensure full pressure at motor.

The following will, however, indicate the smallest size that should be used for a short line:

No. 1. Pipe not exceeding 100 feet, $1\frac{1}{4}$ -in. diam.	No. 4. Pipe not exceeding 100 feet, 3 -in. diam.
" 2. " " " 100 " 2 " "	" 5. " " " 100 " 3 $\frac{1}{2}$ " "
" 3. " " " 100 " 2 $\frac{1}{2}$ " "	



RUBBER AND LEATHER BELTING.

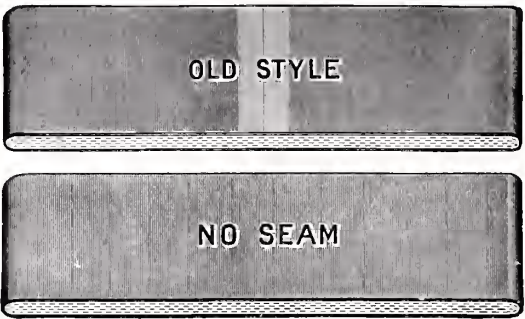


Fig. 2038.

RUBBER BELTING.

	2-ply. Per Ft.	3-ply. Per Ft.	4-ply. Per Ft.	5-ply. Per Ft.	6-ply. Per Ft.		2-ply. Per Ft.	3-ply. Per Ft.	4-ply. Per Ft.	5-ply. Per Ft.	6-ply. Per Ft.
1 -inch.	\$0.07	. .	. .	. .	. .	11-inch.	\$0.83	1.00	1.18	1.47	1.77
1 1/4 " "	.09	. .	. .	. .	. .	12 " "	.91	1.08	1.30	1.62	1.95
1 1/2 " "	.11	. .	. .	. .	. .	13 " "	1.00	1.18	1.42	1.77	2.13
2 " "	.15	.17	.21	.26	.31	14 " "	1.08	1.28	1.54	1.92	2.31
2 1/2 " "	.18	.22	.26	.33	.39	15 " "	1.16	1.38	1.66	2.07	2.49
3 " "	.22	.26	.31	.39	.47	16 " "	1.25	1.50	1.78	2.22	2.67
3 1/2 " "	.26	.30	.37	.46	.56	18 " "	1.41	1.70	2.02	2.52	3.03
4 " "	.30	.34	.42	.53	.63	20 " "	1.58	1.90	2.26	2.82	3.39
4 1/2 " "	.33	.39	.47	.59	.71	22 " "	1.76	2.12	2.52	3.15	3.78
5 " "	.36	.43	.52	.65	.78	24 " "	1.96	2.36	2.80	3.50	4.20
6 " "	.43	.52	.62	.78	.93	26 " "	2.18	2.60	3.08	3.85	4.62
7 " "	.51	.60	.73	.91	1.10	28 " "	2.42	2.84	3.36	4.20	5.04
8 " "	.59	.70	.84	1.05	1.26	30 " "	. .	. .	3.64	4.55	5.46
9 " "	.67	.80	.95	1.18	1.42						
10 " "	.75	.90	1.07	1.33	1.60						

OAK TANNED LEATHER BELTING.

Prices per Running Foot.

1 -inch.	\$0.10	5-inch.	\$0.63	15-inch.	\$1.98	28-inch.	\$4.30
1 1/4 " "	.13	5 1/2 " "	.70	16 " "	2.14	30 " "	4.64
1 1/2 " "	.17	6 " "	.76	17 " "	2.31	32 " "	5.00
1 3/4 " "	.20	7 " "	.90	18 " "	2.49	34 " "	5.35
2 " "	.23	8 " "	1.02	19 " "	2.66	36 " "	5.70
2 1/4 " "	.26	9 " "	1.15	20 " "	2.84	40 " "	6.40
2 1/2 " "	.30	10 " "	1.29	21 " "	3.02	44 " "	7.10
3 " "	.36	11 " "	1.42	22 " "	3.20	48 " "	7.80
3 1/2 " "	.43	12 " "	1.55	23 " "	3.37		
4 " "	.50	13 " "	1.68	24 " "	3.54		
4 1/2 " "	.56	14 " "	1.82	26 " "	3.92		

Double Belts twice the price of single.

Extra Heavy Belts, extra prices.

RAWHIDE AND TANNED CUT LACE.

SIZE . . . . .	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1
Per 100 Feet . . . . .	\$1.00	1.25	1.50	1.75	2.00	2.75	3.25	4.50

Rawhide and Tanned Lace Leather, in sides.

MANILA WELL ROPE.

HAWSER LAID MANILA ROPE, USED IN DRILLING OIL AND ARTESIAN WELLS.

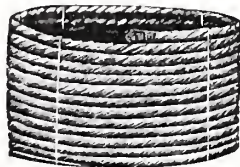


Fig. 2039.

Size Circumference.	Weight 100 Feet. Lbs.	Strength New Rope. Lbs.	Size Circumference.	Weight 100 Feet. Lbs.	Strength New Rope. Lbs.
$\frac{3}{4}$	3	500	$4\frac{1}{4}$	63	14450
1	4	700	$4\frac{1}{2}$	67	16200
$1\frac{1}{8}$	$5\frac{1}{2}$	900	5	84	20000
$1\frac{1}{4}$	7	1250	$5\frac{1}{4}$	92	21650
$1\frac{1}{2}$	8	1800	$5\frac{1}{2}$	100	24200
$1\frac{3}{4}$	11	2450	6	120	28000
2	15	3200	$6\frac{1}{2}$	142	33800
$2\frac{1}{4}$	17	4050	7	170	39200
$2\frac{1}{2}$	21	5000	$7\frac{1}{2}$	190	45200
$2\frac{3}{4}$	25	6050	8	217	51200
3	33	7200	$8\frac{1}{2}$	243	57800
$3\frac{1}{4}$	36	8450	9	276	64800
$3\frac{1}{2}$	42	9800	10	334	80000
$3\frac{3}{4}$	46	11250	11	404	96800
4	54	12800	12	484	115200

The Diameter is one-third the Circumference. Weights given are approximate.  
Prices on application.

TABLE SHOWING ATMOSPHERIC PRESSURE AT VARIOUS ALTITUDES ABOVE SEA LEVEL.

The following Table of Barometric Pressures at different altitudes will be found convenient in estimating the suction lift (so-called) of Pumps. It is always well to remember that ordinary calculations on this head are based on atmospheric pressure at sea level—14.7 lbs. per square inch. At higher levels, this pressure is materially reduced, as indicated, and due recognition should always be made of these facts. Not only does this influence the lifting power of Pumps, but measurably the working capacity, in that the water does not fill as quickly the vacuum produced by the plungers.

Pressure at $\frac{1}{4}$ -mile above sea level . . . . .	14.02 lbs. per square inch.
“ “ $\frac{1}{2}$ “ “ “ . . . . .	13.33 “ “ “
“ “ $\frac{3}{4}$ “ “ “ . . . . .	12.66 “ “ “
“ “ 1 “ “ “ . . . . .	12.02 “ “ “
“ “ $1\frac{1}{4}$ “ “ “ . . . . .	11.42 “ “ “
“ “ $1\frac{1}{2}$ “ “ “ . . . . .	10.88 “ “ “
“ “ 2 “ “ “ . . . . .	9.88 “ “ “

HOSE GOODS.

RUBBER HOSE FOR HYDRANT AND ENGINE.

Made in four qualities ; branded "Standard," "S. & W.," "S. & W. Extra," "Superior."

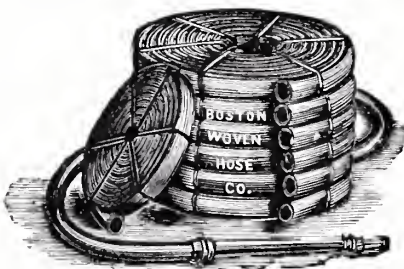


Fig. 2040.

2-PLY CONDUCTING HOSE— Fig. 2040.

INTERNAL DIAMETER.				INTERNAL DIAMETER.			
$\frac{1}{2}$ -inch	Per foot.	\$0.20		$2\frac{1}{2}$ -inch	Per foot.	\$0.92	
$\frac{3}{4}$ "	"	.25		3 "	"	.95	
1 "	"	.33		4 "	"	1.38	
$1\frac{1}{4}$ "	"	.42		5 "	"	1.61	
$1\frac{1}{2}$ "	"	.50		6 "	"	1.94	
$1\frac{3}{4}$ "	"	.58		7 "	"	2.37	
2 "	"	.66		8 "	"	2.62	
$2\frac{1}{4}$ "	"	.75		9 "	"	2.99	
$2\frac{1}{2}$ "	"	.83		10 "	"	3.33	

3-PLY HYDRANT HOSE — Fig. 2040.

INTERNAL DIAMETER.						
$\frac{1}{2}$ -inch.	Per foot.	\$0.25	$2\frac{1}{2}$ -inch.	Per foot.	\$ .90	
$\frac{3}{4}$ "	"	"	.30	$2\frac{3}{4}$ "	"	1.00
1 "	"	"	.40	$2\frac{7}{8}$ "	"	1.10
$1\frac{1}{4}$ "	"	"	.50	3 "	"	1.20
$1\frac{1}{2}$ "	"	"	.60	$3\frac{1}{8}$ "	"	1.40
$1\frac{3}{4}$ "	"	"	.70	4 "	"	1.60
2 "	"	"	.80			

4-PLY ENGINE HOSE — Fig. 2040.

INTERNAL DIAMETER.				INTERNAL DIAMETER.			
$\frac{1}{2}$ -inch.	Per foot.	\$0.30		2 -inch.	Per foot.	\$1.00	
$\frac{3}{4}$ "	"	.37		$2\frac{1}{4}$ "	"	1.12	
1 "	"	.50		$2\frac{1}{2}$ "	"	1.25	
$1\frac{1}{4}$ "	"	.62		$2\frac{3}{4}$ "	"	1.37	
$1\frac{1}{2}$ "	"	.75		3 "	"	1.50	
$1\frac{3}{4}$ "	"	.87		4 "	"	2.00	

All intermediate sizes to be charged at the List price of the next larger size, thus:  $\frac{3}{4}$ -inch will be charged at 1-inch price.

Five or 6-ply Hose made to order at an advance of 25 per cent. on prices of 4-ply, for each additional ply.

SPIRAL WIRE SUCTION HOSE.

SIZE . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2
Fig. 2041. . Per foot.	\$0.77	1.00	1.25	1.65	2.10	2.50



Fig. 2041.

FLAT WIRE SUCTION HOSE.

SIZE . . . IN.	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	6	7	8	10	12
Per foot . . .	\$3.10	4.00	4.90	5.80	6.70	7.60	9.50	12.00	15.00	20.00	25.00

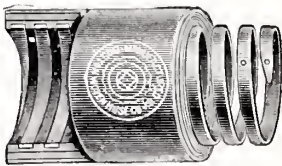


Fig. 2042.

SMOOTH BORE RUBBER SUCTION HOSE.

SIZE . . IN.	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	5	6	7	8	10	12
Per foot. .	\$2.60	3.50	4.50	5.50	6.50	8.50	10.50	13.50	16.50	22.50	27.50

We can furnish this hose in any length desired, to order.

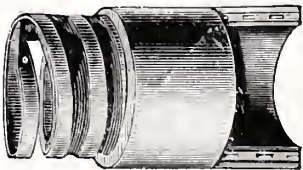


Fig. 2043.

4-PLY HARD RUBBER SUCTION HOSE.

INTERNAL DIAMETER . . . . INCHES.	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$
Per foot . . . . .	\$0.65	.75	.93	1.13	1.31	1.50	1.69	1.88

# HOSE GOODS—CONTINUED.

## BREWERS', OIL, TANNERS' AND STEAM HOSE.

## WINDING STEAM HOSE WITH MARLINE.

Internal Diameter.	3-Ply. Per Foot.	4-Ply. Per Foot.	5-Ply. Per Foot.	6-Ply. Per Foot.	Internal Diameter.	3-Ply. Per Foot.	4-Ply. Per Foot.	5-Ply. Per Foot.	6-Ply. Per Foot.
$\frac{1}{2}$ -inch . . . . .	\$0.43	.51	.63	.76	$\frac{1}{2}$ -inch . . . . .	\$0.04	.05	.06	.07
$\frac{3}{4}$ " . . . . .	.51	.67	.83	1.00	$\frac{3}{4}$ " . . . . .	.05	.06	.07	.08
1 " . . . . .	.67	.83	1.03	1.24	1 " . . . . .	.06	.07	.08	.09
1 $\frac{1}{4}$ " . . . . .	.85	1.04	1.30	1.56	1 $\frac{1}{4}$ " . . . . .	.07	.08	.09	.10
1 $\frac{1}{2}$ " . . . . .	1.02	1.25	1.56	1.87	1 $\frac{1}{2}$ " . . . . .	.08	.09	.10	.11
1 $\frac{3}{4}$ " . . . . .	1.18	1.45	1.81	2.17	1 $\frac{3}{4}$ " . . . . .	.09	.10	.11	.12
2 " . . . . .	1.34	1.66	2.07	2.49	2 " . . . . .	.10	.11	.12	.13
2 $\frac{1}{2}$ " . . . . .	1.66	2.08	2.60	3.12	2 $\frac{1}{2}$ " . . . . .	.11	.12	.13	.14
3 " . . . . .	2.00	2.80	3.50	4.20	2 $\frac{1}{2}$ " . . . . .	.12	.13	.14	.15

## COTTON GARDEN HOSE.

"SPIRAL," "EUREKA" OR "NEW YORK."

$\frac{1}{2}$ -inch coupled . . . . .	Per foot.	\$0.25
$\frac{3}{4}$ " " . . . . .	"	.30
1 " uncoupled . . . . .	"	.45

Price of  $\frac{1}{2}$  and  $\frac{3}{4}$ -inch include Patent Couplings on 50-foot lengths.

Furnished in 25 lengths if desired.

Add 30 cents for Couplings.



Fig. 2044.

## WIRE WOUND HOSE.



Fig. 2045.

Figs. 2045 and 2046 represent the Galvanized Spring Steel Armored Hose. Will stand practically unlimited pressure. Exhaustive examination and crucial test have proved its superior advantage over ordinary hose, and we guarantee every foot sold to wear and withstand constant service for such longer period over other hose as to render its actual cost much less in the end. It cannot be kinked. More hose is destroyed by the sudden concussion through kinking, when a full velocity of

water is rushing through it than by actual wear. The flow of water is never obstructed. It is more flexible than unarmored. The armor is a perfect protection from abrasion.



Fig. 2046.

## HYDRANT AND ENGINE HOSE.

Int. Diam.	Per Ft.	Int. Diam.	Per Ft.
$\frac{1}{2}$ -inch, 3-ply . . . . .	\$0.16	1 -inch, 4-ply . . . . .	\$0.37
$\frac{3}{4}$ " 3 " . . . . .	.20	1 $\frac{1}{4}$ " 4 " . . . . .	.48
1 " 3 " . . . . .	.30	1 $\frac{1}{2}$ " 4 " . . . . .	.57
1 $\frac{1}{4}$ " 3 " . . . . .	.38	1 $\frac{3}{4}$ " 4 " . . . . .	.63
1 $\frac{1}{2}$ " 3 " . . . . .	.45	2 " 4 " . . . . .	.75
1 $\frac{3}{4}$ " 3 " . . . . .	.52	2 $\frac{1}{4}$ " 4 " . . . . .	.85
2 " 3 " . . . . .	.60	2 $\frac{1}{2}$ " 4 " . . . . .	.93
2 $\frac{1}{4}$ " 3 " . . . . .	.68	2 $\frac{3}{4}$ " 4 " . . . . .	1.10
2 $\frac{1}{2}$ " 3 " . . . . .	.75	3 " 4 " . . . . .	1.25
2 $\frac{3}{4}$ " 3 " . . . . .	.88	3 $\frac{1}{2}$ " 4 " . . . . .	1.44
3 " 3 " . . . . .	1.00	4 " 4 " . . . . .	1.70
3 $\frac{1}{2}$ " 3 " . . . . .	1.15	5 " 4 " . . . . .	2.10
4 " 3 " . . . . .	1.35	6 " 4 " . . . . .	2.50

## ARMORED SUCTION HOSE.

This is the only Suction Hose made on a correct principle. It is impossible to collapse it; there is no internal wire to corrode or produce friction.

Int. Diam.	Per Ft.	Int. Diam.	Per Ft.
$\frac{3}{4}$ -inch . . . . .	\$0.38	5 -inch . . . . .	\$5.20
1 " . . . . .	.50	5 $\frac{1}{2}$ " . . . . .	5.90
1 $\frac{1}{4}$ " . . . . .	.62	6 " . . . . .	6.50
1 $\frac{1}{2}$ " . . . . .	.75	6 $\frac{1}{2}$ " . . . . .	7.75
1 $\frac{3}{4}$ " . . . . .	.95	7 " . . . . .	9.00
2 " . . . . .	1.40	7 $\frac{1}{2}$ " . . . . .	10.25
2 $\frac{1}{2}$ " . . . . .	2.00	8 " . . . . .	12.00
3 " . . . . .	2.70	9 " . . . . .	14.50
3 $\frac{1}{2}$ " . . . . .	3.20	10 " . . . . .	17.50
4 " . . . . .	3.95	12 " . . . . .	23.00
4 $\frac{1}{2}$ " . . . . .	4.55		



HOSE GOODS—CONTINUED.



Fig. 2047.

STANDARD COTTON MILL HOSE, RUBBER-LINED.

Guaranteed to 300 lbs. Pressure.

SIZE . . . . .	INCHES.	1¼	1½	2	2½
Fig. 2047 . . . . .	Per foot.	\$0.45	.50	.60	.70

COTTON RUBBER-LINED HOSE. UNDERWRITERS' BRAND.

Guaranteed 400 lbs. Pressure.

SIZE . . . . .	INCHES.	1¼	1½	2	2½	3
Per foot . . . . .		\$0.45	.50	.60	.70	.90

WHITE RUBBER TUBING.

THICKNESS . . . . .	INCHES.	⅛	3⁄16	¼	5⁄16	⅜	½	5⁄8	¾	1
Plain . . . . .	Per foot.	\$0.08	.12	.16	.18	.20	.25	.30	.35	.45
Cloth Insertion . . . . .	"	.10	.14	.18	.20	.23	.28	.33	.38	.50

Plain made in 50-foot lengths. Cloth Insertion made in 12-foot lengths.



Fig. 2048.

STANDARD LINED AND UNLINED LINEN HOSE.

SIZE . . . . .	INCHES.	¾	1	1¼	1½	2	2¼	2½	3
Fig. 2048, Unlined . . . . .	Per foot.	\$0.13	.15	.18	.20	.24	.26	.28	.40
" 2048, Lined . . . . .	"	. .	. .	.45	.50	.55	.60	.65	. .

"R. R." UNDERWRITERS', UNLINED LINEN HOSE.

Guaranteed to stand 400 lbs. Pressure.

SIZE . . . . .	INCHES.	1	1¼	1½	2	2½
Per foot . . . . .		\$0.35	.45	.54	.70	.80

# HOSE GOODS—CONTINUED.

## HOSE COUPLINGS.

### SMALL SIZE HOSE COUPLING.

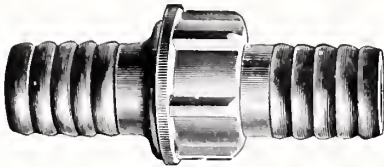


Fig. 2049.

SIZE OF HOSE . . . . .	$\frac{1}{2}$	$\frac{3}{4}$	1
Fig. 2049 . . . . . Each.	\$0.20	.20	.37

### LARGE SIZE HOSE COUPLING.

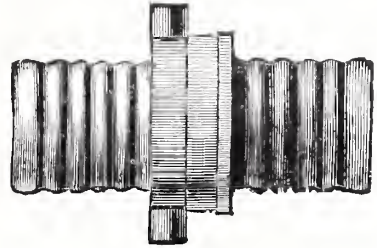


Fig. 2050.

SIZE HOSE $1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$
Fig. 2050.	\$0.88	1.25	2.50	4.00	6.00	8.00	10.00 12.00

Half set Couplings two-third price whole set.

### BOSTON COUPLING, EXPANDED RING.

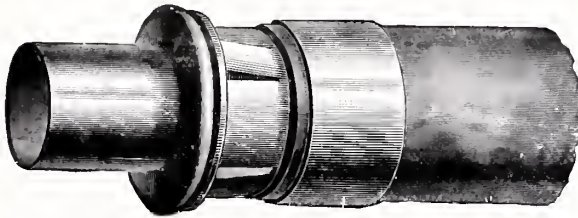


Fig. 2051.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$
Fig. 2051. With Bands . Per dozen.	\$3.00	3.00

### NE PLUS COUPLING.



Fig. 2052.

SIZE OF HOSE . . .	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{1}{2}$
Fig. 2052 . Per set.	\$1.33	1.67	1.67	2.33	2.67	3.00
SIZE . . . . . INCHES.	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$		
Attaching Tools. Per set.	\$6.00	6.00	10.00	10.00		

### MILL COUPLING.

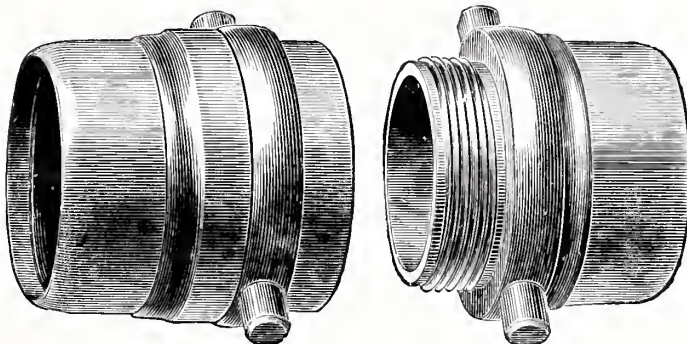


Fig. 2053.

An Expansion Ring Coupling without the bead, suitable for mill and single-ply fire department hose.  
 Fig. 2053 . . . . . Per set. 2-inch, \$2.50,  $2\frac{1}{2}$ -inch, \$3.00.

HOSE GOODS—CONTINUED.

HOSE NIPPLES AND REDUCERS.

HOSE NIPPLE.




Fig. 2054.

SIZE . . . . . INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 2054 . . . . . Each.	\$0.30	.30	.42	.75	.83	1.17	2.33	3.33
“ 2055 . . . . . “			.55	.84	1.00	1.50		

HOSE REDUCER.




Fig. 2055.

HOSE BIBB ENDS AND SPRINKLERS.

HOSE BIBB END.




Fig. 2056.

SIZE . . . . . INCHES.	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$1\frac{1}{16}$	$\frac{3}{4}$	$1\frac{3}{16}$	$\frac{7}{8}$	$1\frac{5}{16}$
Fig. 2056 . . . . . Per dozen.	\$2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75	2.75

ROSE SPRINKLERS.




Fig. 2057.

SIZE OF FACE . . INCHES.	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4
Fig. 2057. . . . . Per dozen.	\$3.50	4.50	6.00	9.00	12.00	18.00

HOUSE CONNECTION.




Fig. 2058.

HOPEKINS' SPANNER.

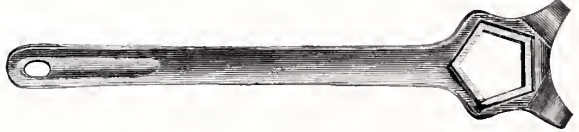


Fig. 2059.

SIZE . . . IN.	$\frac{3}{4}$	1
Fig. 2058. Each.	\$0.75	1.20

Fig. 2059 . . . . . Per dozen.	\$9.00
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Spanner and Hydrant Wrench Combined.

MALLEABLE IRON HOSE SPANNER.




Fig. 2060.

TABER'S SPANNER.

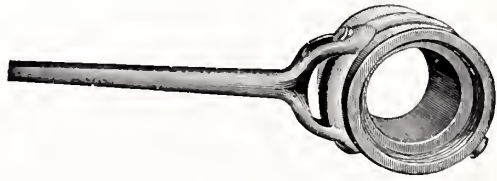


Fig. 2061.

SIZE . . . . . INCHES.	$2\frac{1}{2}$
Fig. 2060. Painted . . . . . Per dozen.	\$4.00
“ 2060. Japanned . . . . . “	6.00
“ 2060. Nickel Plated . . . . . “	12.00

Fig. 2061 . . . . . Per dozen.	\$7.20
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Will turn Coupling to the right or left without removing it.

# HOSE GOODS — CONTINUED.

## PLAIN HOSE PIPES, WITH SCREW TIP.

WITH SCREW TIP.



Fig. 2062.

WITH SOLID TIP.



Fig. 2063.

WITH COCK ON LARGE END.



Fig. 2064.

HOSE NOZZLE, TO TIE ON.



Fig. 2065.

SIZE . . . . .	INCHES.	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$
Length . . . . .	"	8	12	8	12	12	15	20	12	15	20	17	17	
Fig. 2062 . . . . .	Per dozen.	\$8.00	10.00	10.00	12.00	20.00	24.00	30.00	25.00	30.00	36.00	50.00	76.00	
" 2063. Solid Tip. . . . .	"	7.00	9.00			18.00			22.00					

SIZE . . . . .	INCHES.	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	2	$2\frac{1}{2}$	$2\frac{1}{2}$
Length . . . . .	"	6	8	12	8	12	12	15	20	12	15	20	12	20	15	24
Fig. 2064 . Per doz.		\$11.00	12.00	18.00	15.00	20.00	40.00	45.00	55.00	60.00	80.00	80.00	110.00	150.00	200.00	

SIZE . . . . .	INCHES.	$\frac{3}{4}$ x $3\frac{1}{2}$	1 x 4	$1\frac{1}{4}$ x $4\frac{1}{2}$
Fig. 2065 . . . . .	Per dozen.	\$3.50	4.00	6.50

## EXTRA HEAVY HOSE PIPE.



Fig. 2066.

Fig. 2066.	$1\frac{1}{2}$ x 15-inch, Plain Butt, Screw Nozzle . . . . .	\$3.00
" 2066.	2, $2\frac{1}{4}$ , $2\frac{1}{2}$ 20 " " " " " . . . . .	5.50
" 2066.	2, $2\frac{1}{4}$ , $2\frac{1}{2}$ 30 " " " " " . . . . .	10.00
" 2066.	2, $2\frac{1}{4}$ , $2\frac{1}{2}$ 36 " " " " " . . . . .	12.00
" 2066.	2, $2\frac{1}{4}$ , $2\frac{1}{2}$ 20 " " Fixed " " . . . . .	4.00
" 2066.	2, $2\frac{1}{4}$ , $2\frac{1}{2}$ 30 " " " " " . . . . .	7.50
" 2066.	2, $2\frac{1}{4}$ , $2\frac{1}{2}$ 36 " " " " " . . . . .	8.50

## FIXED NOZZLE.

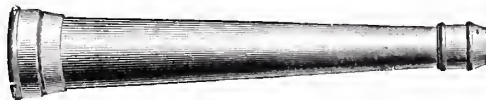


Fig. 2067.

Fig. 2067.	$1\frac{1}{2}$ -inch Butt, 15 inches long . . . . .	\$1.75
" 2067.	$1\frac{1}{2}$ " " 15 " " . . . . .	2.25
" 2067.	$2\frac{1}{2}$ " " 17 " " . . . . .	3.34
" 2067.	$2\frac{1}{2}$ " " 17 " " . . . . .	5.42
" 2067.	$2\frac{1}{2}$ " " 17 " " . . . . .	5.42





# HOSE GOODS—CONTINUED.

PATENT SWING RACK WITH WALL PLATE.

"B. W. H." RACK.

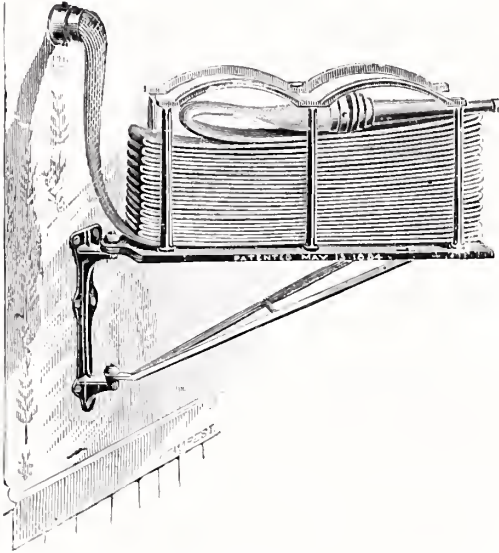


Fig. 2074.

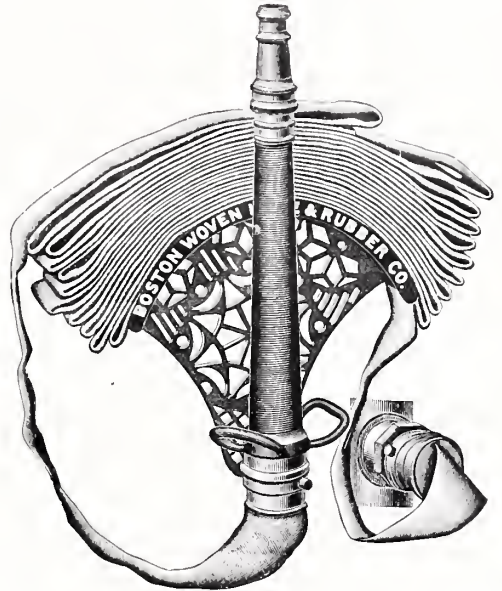


Fig. 2075.

Fig. 2074.

RACKS JAPANNED RED FOR UNLINED LINEN HOSE.

FOR RUBBER-LINED LINEN OR MILL HOSE.

Fig.	No.	Size of Hose.	Full Capacity.	Price.
2074.	0.	for 1½ or 2-inch.	50 feet.	\$5.00
2074.	00.	" 2½ "	50 "	5.00
2074.	1.	" 1½ " 2 "	100 "	6.00
2074.	2.	" 2½ " "	100 "	6.00
2074.	3.	" 1½ " 2 "	150 "	7.00
2074.	4.	" 2½ " "	150 "	7.00

Fig.	No.	Size of Hose.	Full Capacity.	Price.
2074.	3.	for 1½ or 2-inch.	50 feet.	\$7.00
2074.	4.	" 2½ " "	50 "	7.00
2074.	5.	" 1½ " 2 "	100 "	7.50
2074.	6.	" 2½ " "	100 "	8.00

Numbers 5 and 6 will carry heavy hose in 50-foot lengths of almost any make.

We make the above in Nickel or Brass, if desired, and submit prices on application.

Fig. 2075.

Fig. 2075. No. 1, for 1½-inch Hose . . . . \$5.00, No. 2, for 2 and 2½-inch Hose . . . . . \$6.00

THURSTON'S PATENT HOSE REEL.

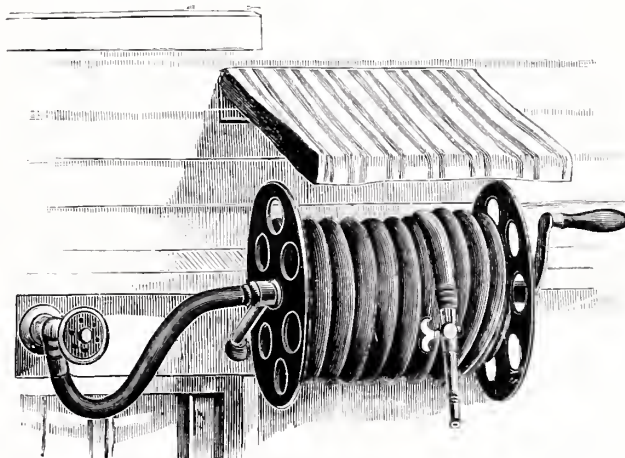


Fig. 2076.

Fig. 2076. Reel complete, with Bracket; holds 100 feet ¾-inch Hose . . . . . Each. \$5.00

HOSE GOODS—CONTINUED.

BRASS SIAMESE COUPLINGS.

LOOSE COUPLING.

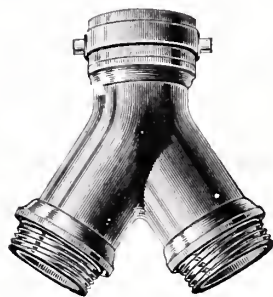


Fig. 2077.

LOOSE COUPLING.

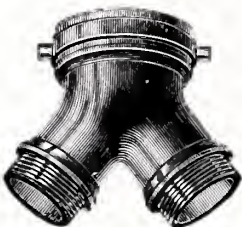


Fig. 2078.

LOOSE COUPLINGS.



Fig. 2079.

LOOSE COUPLING WITH VALVES.



Fig. 2080.

Fig. 2077.	Two 2½-inch Male, One 2½-inch Female Loose Coupling . . . . .	\$10.00
" 2078.	Two 2½ " " One 4 " " " Couplings . . . . .	14.00
" 2079.	One 2½ " " Two 2½ " " " Couplings . . . . .	13.00
" 2080.	Two 2½ " " One 4 " " " Coupling, Valves on 2½-inch ends. .	40.00

TABLE OF PUMP AND NOZZLE PRESSURE.

Pressure required at nozzle and at pump, with quantity and pressure of water necessary to throw water various distances through different sized nozzles, using 2½-inch rubber hose and smooth nozzles.—G. A. ELLIS, C. E.

SIZE OF NOZZLES.	1 Inch.				1 1-8 Inch.				1 1-4 Inch.				1 3-8 Inch.			
	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100
Pressure at Nozzle . . . . .	40	60	80	100	40	60	80	100	40	60	80	100	40	60	80	100
Pressure at Pump or Hydrant, with 100 feet 2½-inch Rubber Hose . . . . .	48	73	97	121	54	81	108	135	61	92	123	154	71	107	144	180
Gallons per Minute . . . . .	155	189	219	245	196	240	277	310	242	297	342	383	293	358	413	462
Horizontal distance thrown . .	109	142	168	186	113	148	175	193	118	156	186	207	124	166	200	224
Vertical distance thrown . .	79	108	131	148	81	112	137	157	82	115	142	164	85	118	146	169

HOSE GOODS — CONTINUED.

CALDWELL PATENT HOSE STRAP.



Fig. 2081.

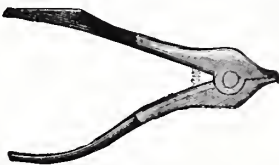


Fig. 2082.

No. 2,	$\frac{1}{2}$ -inch,	$3\frac{3}{4}$ inches long .	Per dozen.	\$0.40	No. 20,	$1\frac{1}{2}$ -inch,	$7\frac{1}{2}$ inches long .	Per dozen.	\$1.20
" 4,	$\frac{1}{2}$ "	$3\frac{3}{4}$ "	" "	.40	" 22,	$1\frac{3}{4}$ "	$7\frac{1}{2}$ "	" "	1.40
" 6,	$\frac{3}{4}$ "	$4\frac{1}{2}$ "	" "	.60	" 24,	$1\frac{3}{4}$ "	8 "	" "	1.40
" 8,	$\frac{7}{8}$ "	$4\frac{1}{2}$ "	" "	.60	" 26,	2 "	$8\frac{1}{2}$ "	" "	1.60
" 10,	1 "	5 "	" "	.80	" 28,	2 "	9 "	" "	1.60
" 12,	1 "	$5\frac{3}{4}$ "	" "	.80	" 30,	$2\frac{1}{4}$ "	$9\frac{1}{2}$ "	" "	1.80
" 14,	$1\frac{1}{4}$ "	6 "	" "	1.00	" 32,	$2\frac{1}{4}$ "	10 "	" "	1.80
" 16,	$1\frac{1}{4}$ "	$6\frac{3}{4}$ "	" "	1.00	" 34,	$2\frac{1}{2}$ "	$10\frac{1}{2}$ "	" "	2.00
" 18,	$1\frac{1}{2}$ "	$6\frac{3}{4}$ "	" "	1.20	" 36,	$2\frac{1}{2}$ "	11 "	" "	2.00

Fig. 2082. Hose Strap Fasteners,  $\frac{1}{2}$  to 1-inch, 50 cents ;  $1\frac{1}{4}$  to  $2\frac{1}{2}$ -inch, 75 cents.

EARLE'S HOSE BANDS.



Fig. 2083.

Same List as the Caldwell Strap.

HUDSON HOSE STRAP AND MENDER.

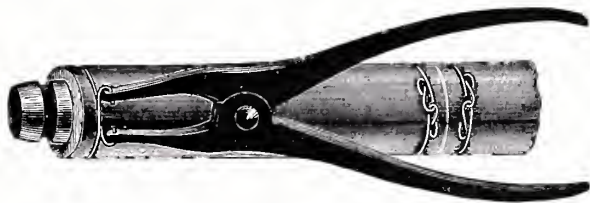


Fig. 2084.

The above illustration shows the Hudson Hose Strap and manner of fastening same. On the extreme left in cut is shown the Mender, and on the extreme right a connection made by use of the Mender. These articles are put up in boxes containing 1 Plyer, 8 Thimbles, and 16 Wires.

Price, per set . . . . . \$1.00

Fig. 2084.	$\frac{1}{2}$ -inch Straps . . . . .	Per dozen.	\$0.40
" 2084.	$\frac{3}{4}$ " " . . . . .	"	.60
" 2084.	1 " " . . . . .	"	.80
Strap Fasteners . . . . .		Each.	.50



HOSE GOODS—CONTINUED.

IRON HOSE MENDERS.

IRON MENDER.



Fig. 2085.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1
Fig. 2085.	Brass. . . . .	Per doz.	\$1.20	1.20 2.00
" 2085.	Iron Coppered " . . . . .		.40	.50 1.00

HALL'S HOSE MENDER.



Fig. 2086.

Fig. 2086.	$\frac{1}{2}$ and $\frac{3}{4}$ -inch . . . . .	Per gross.	\$9.00
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HUDSON HOSE MENDER.

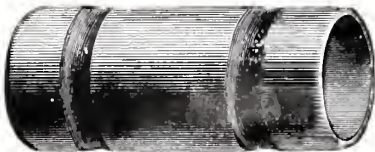


Fig. 2087.

These are put up in boxes containing 1 Plyer, 6 Thimbles and 20 Wires. Price, \$1.00.

Fig. 2087.	$\frac{1}{2}$ -inch Strap . . . . .	Per dozen.	\$0.40
" 2087.	$\frac{3}{4}$ " " . . . . .	"	.60
" 2087.	1 " " . . . . .	"	.80

HOSE CLAMPS.

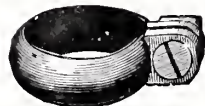


Fig. 2088.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
Fig. 2088 . . . . .	Each.	\$0.16	.16	.18	.20	.30	.40	.60	.90
" 2089 . . . . .	Per pair.	.25	.25	.35	.45	.50	.70	1.20	1.65



Fig. 2089.

TUERK'S HOSE CLAMPS.

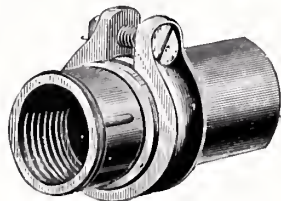


Fig. 2090.

SIZE . . . . .	INCHES.	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3
For Hydrant Hose . . . . .	Per doz.	\$1.50	1.50	2.00	2.50	3.00	4.00	7.00	10.00
" Steam " . . . . .	"	1.50	2.00	2.50	3.00	3.50	5.50	8.50	13.00

Three or four-ply same price.

GLOBE STRAINER.



Fig. 2091.

SIZE . . . . .	INCHES.	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Fig. 2091.	Galvanized . . . . .	\$0.50	.60	.75	1.25
" 2091.	Brass . . . . .	2.00	2.25	2.75	3.50

Globe Strainers, 3 inches and larger, same price as Fig. 2092.

HOSE GOODS—CONTINUED.

BRASS SUCTION BASKETS.  
TO SCREW ON.

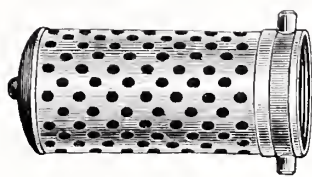


Fig. 2092.

SIZE . . . . . INCHES.	1¼	1½	2	2½	3	3½	4	4½	5
Fig. 2092 . . . . . Each.	\$1.75	2.00	3.50	4.00	6.00	8.00	10.00	12.00	14.00

BRASS SUCTION BASKETS.  
TO TIE ON.

SIZE . . . . . INCHES.	¾	1	1¼	1½	2
Fig. 2093 . . . . . Each.	\$2.50	3.00	3.25	4.00	5.00



Fig. 2093.

BRASS HOSE REDUCERS.



Fig. 2094.

SIZE . . . . . INCHES.	1 to ¾	1½ to ¾	1½ to 1	2 to ¾	2 to 1	2 to 1¼	2 to 1½
Fig. 2094 . . . . . Each.	\$0.60	.85	.95	1.25	1.50	1.60	2.10

BRASS HOSE CAPS.

SIZE . . . . . INCHES.	1	1¼	1½	2	2½
Fig. 2095 . . . . . Each.	\$1.00	1.50	2.00	2.50	3.00



Fig. 2095.

TABLE OF BRANCH PIPES OF EQUAL AREA TO MAIN PIPE.

Main Pipe, In.	¼ In.	⅜ In.	½ In.	¾ In.	1 In.	1¼ In.	1½ In.	2 In.	2½ In.	3 In.	4 In.	5 In.	6 In.	7 In.	8 In.	10 In.	12 In.
1	16	7	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..
1¼	25	11	6	3	..	..	..	..	..	..	..	..	..	..	..	..	..
1½	36	16	9	4	2	..	..	..	..	..	..	..	..	..	..	..	..
2	64	28	16	7	4	2½	..	..	..	..	..	..	..	..	..	..	..
2½	100	44	25	11	6	4	3	..	..	..	..	..	..	..	..	..	..
3	144	64	35	16	9	6	4	2	..	..	..	..	..	..	..	..	..
4	256	114	64	28	16	10	7	4	2½	..	..	..	..	..	..	..	..
5	400	177	100	44	24	16	12	6	4	3	..	..	..	..	..	..	..
6	576	256	144	64	36	24	16	9	6	4	2	..	..	..	..	..	..
7	784	348	196	87	49	31	21	12	8	5	3	2	..	..	..	..	..
8	1024	456	256	112	64	40	28	16	10	7	4	2½	2	..	..	..	..
10	1600	711	400	177	100	64	44	25	16	11	6	4	3	2	..	..	..
12	2304	1024	576	256	144	96	64	36	24	16	8	6	4	3	2	..	..
16	4096	1824	1024	448	256	160	112	64	40	28	16	10	7	5	4	2½	..
24	9216	4096	2304	1024	576	384	256	144	96	64	32	24	16	12	9	6	4
30	14400	6400	3600	1600	900	576	400	222	144	100	55	36	25	18	14	9	6
36	20761	9216	5190	2304	1297	829	576	324	207	144	81	52	36	26	20	13	9

The above table will be found useful in finding, at one view, the number of branch pipes that will be equal to the main pipe for steam, water or gas.  
All pipes are measured by the internal diameter in inches.



# LAWN SPRINKLERS—CONTINUED.

“PERFECTION,” FOR LAWN HOSE.

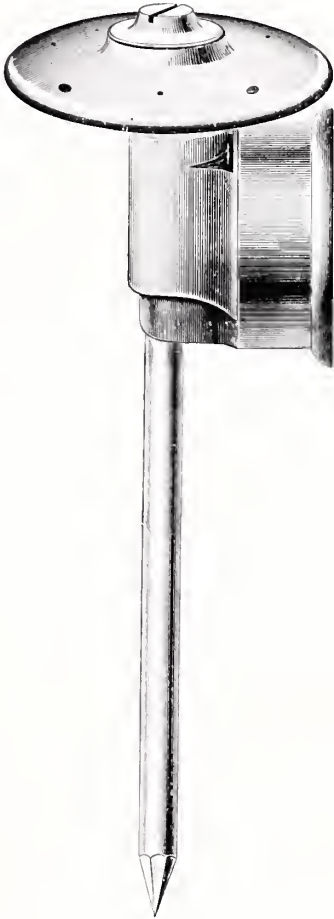


Fig. 2100.

Fig. 2100. Fitted for  $\frac{3}{4}$  Hose Thread . . Each. \$1.25

“PERFECTION,” FOR IRON PIPE.



Fig. 2102.

Fig. 2102. Fitted for Iron Pipe Thread . . \$1.25

BONNETTE'S “ARC.”

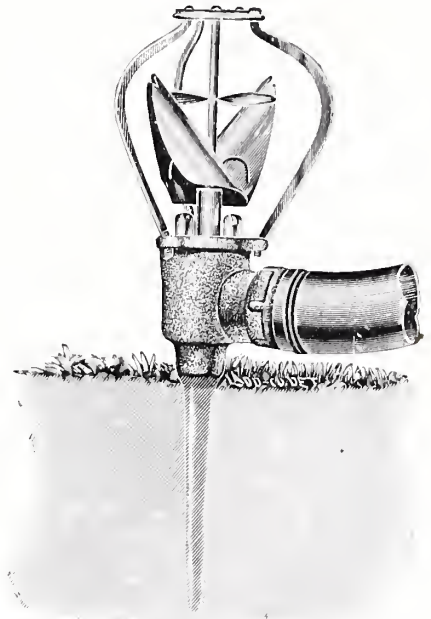


Fig. 2101.

Fig. 2101 . . . . . Per dozen. \$24.00

THE “HUSTLER.”

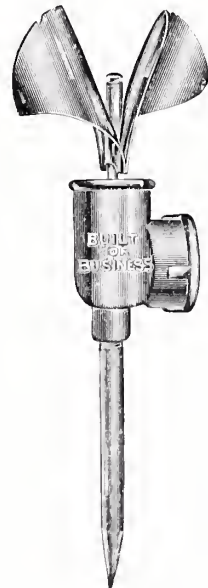


Fig. 2103.

Fig. 2103 . . . . . Per dozen. \$20.00



LAWN SPRINKLERS — CONTINUED.

“MAID OF THE MIST.”

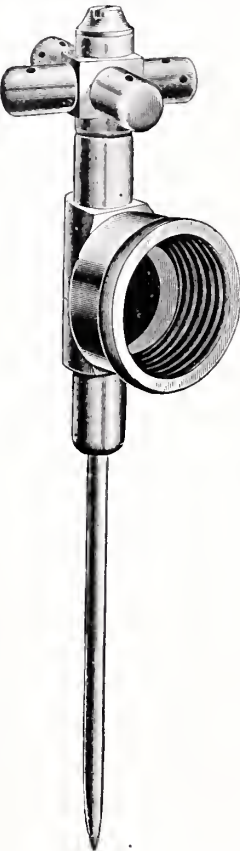


Fig. 2104.

THE “MAID OF THE MIST” WITH PAN.

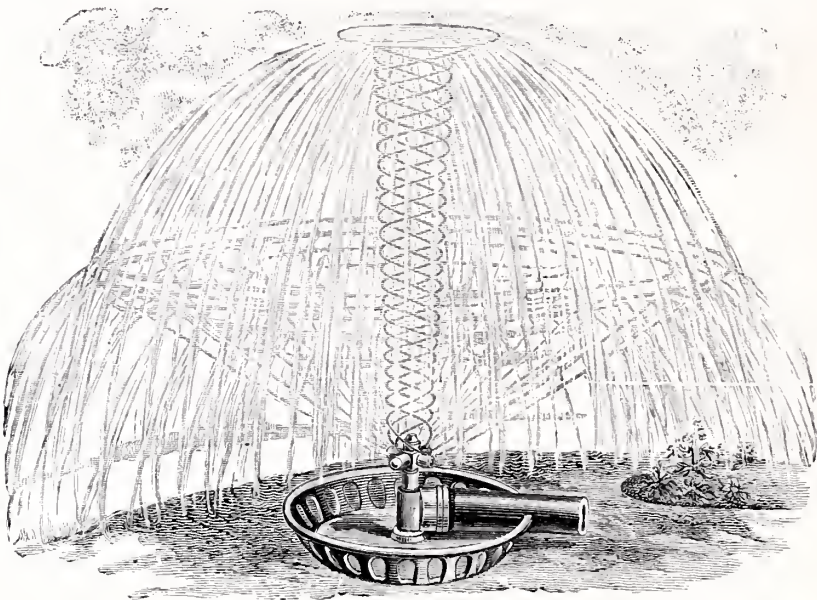


Fig. 2105.

Fig. 2105 furnishes a good illustration of the “Maid of the Mist” Lawn Sprinkler.

Fig. 2104. Arranged for 3/4-inch Hose . . . . . Each, \$0.75  
“ 2104. Can be moved from place to place without shutting off  
water . . . . . 1.00

“WATER WITCH” LAWN SPRINKLER.

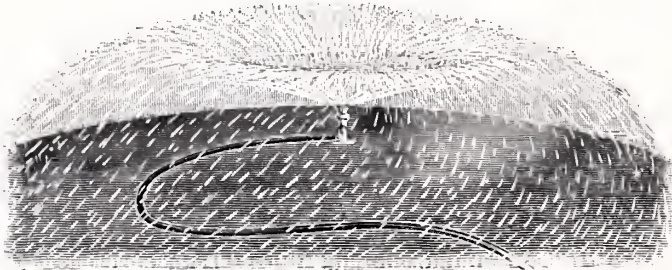


Fig. 2106.

Fig. 2106 furnishes a good illustration of the “Water Witch” Lawn Sprinkler.

Fig. 2106. Fitted as shown in cut . . . . . \$0.75



# TWO-WHEEL MILL HOSE CARTS.

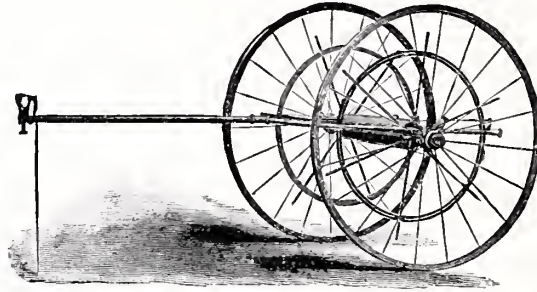


Fig. 2111.

These Carts are made of wrought iron tubing, with our special fittings, and are strong and durable, but at the same time light and easy to handle. They have steel axles, and bicycle wheels with steel tires, and are particularly adapted for use about mills, factories, and public buildings. Furnished with wooden wheels if preferred. They are nicely painted and striped, and the hub-caps are nickel plated.

	Size.	Capacity Rubber Hose.	Length.	Width.	Height.	Price.
Fig. 2111.	No. 1.	500 feet.	9 feet 2 inches.	4 feet 10½ inches.	4 feet 10½ inches.	\$80.00
" 2111.	" 2.	300 "	8 " 1 inch.	4 " 4 "	4 " "	60.00
" 2111.	" 3.	200 "	7 " 4 inches.	4 " 4 "	3 " 6 "	50.00

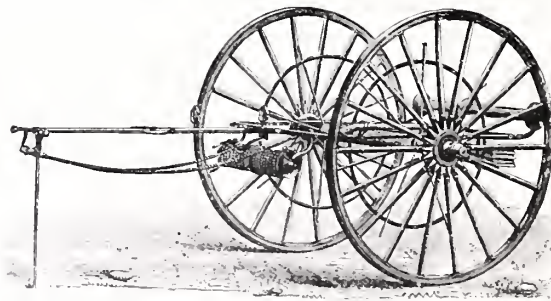


Fig. 2112.

This Cart is substantially the same as the preceding one, excepting that the reel is operated by means of handles instead of cranks and chains. It will hold 600 feet of rubber fire hose. The frame and wheels, and also the appurtenances, are the same; these latter consist of rope reel and drag rope, holders for play pipe, axe, tool box, and wrenches. The painting is English vermilion, nicely striped, and the hub-caps are nickel plated.

Dimensions: Length, 10 feet; width, 5 feet 8 inches; height, 5 feet 4½ inches. Weight 500 pounds. Price, \$125.

# A. H. MATTHEWS' VEGETABLE SEED DRILLS.

MADE IN TWO SIZES.  
LARGE DRILL.

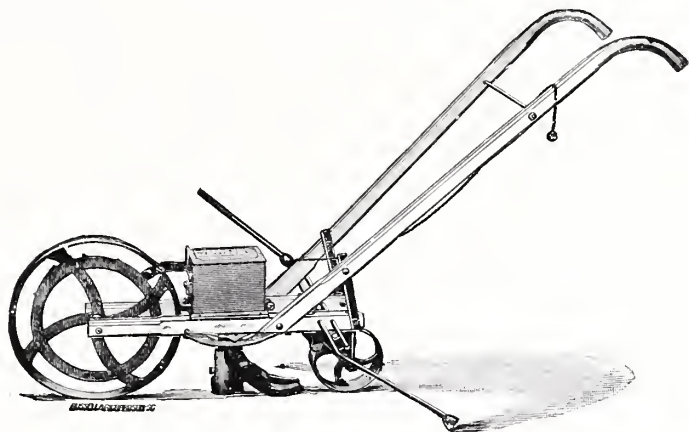


Fig. 2113.

Fig. 2113. It will be seen by the cut that the handles are bolted to the frame of the machine, and can be fixed at any height. These drills have been further improved by the addition of a new steel dial gauge and shut-off attachment.

It may be used in field or garden, and, when in use, it opens the furrow, drops the seed evenly and at the required depth, covers it, and lightly rolls the earth over the seed (causing them to germinate) and marks the next row, all at one operation, with great mechanical precision. It is well and thoroughly made, and fully warranted to sow, with evenness and regularity, all the different varieties of vegetable seed, such as turnip, carrot, sage, spinach, onions, parsnip, beet, peas, beans, fodder corn, etc.

The "Little Gem" Drill was designed and has been perfected for farmers and small gardeners, who have long felt the need of a low-priced, reliable Seed Drill. The "Little Gem" is in every particular a duplicate of the large Seed Drill, and, like it, will make the drill, drop and cover the seed in a perfect manner. Turnip, carrot, sage, spinach, onion, parsnip, beet, etc., are sown with perfect accuracy by this machine. It weighs only twenty pounds, is a little beauty, and will last many years. It is warranted to give entire satisfaction or money will be refunded.

Fig. 2113. Large Drill . . . . .	\$10.00
" 2113. "Little Gem" . . . . .	6.00

## DUPLICATE PARTS A. H. MATTHEWS' SEED DRILLS.

	"Little Gem."	Large Drill.		"Little Gem."	Large Drill.
Main Wheel . . . . .	\$1.25	1.50	Agitator . . . . .	\$0.30	.30
Roller Wheel . . . . .	.50	.62	Agitator Stand, inside Box . . . . .	. . .	.20
" " Frame . . . . .	.30	.75	" Yoke, outside Box . . . . .	. . .	.10
" " Scrapers . . . . .	. . .	.20	" Lever or Rest . . . . .	. . .	.15
Handle Brackets, right . . . . .	. . .	.40	Marker Sleeve, front . . . . .	.20	.30
" " left . . . . .	. . .	.40	" " rear . . . . .	.20	.30
" Rests . . . . .	.15	. . .	Perforated Seed Dial . . . . .	.30	.40
Seed Box . . . . .	.60	1.25	Indicator . . . . .	.20	.25
" " Cover . . . . .	.20	.50	Markers, wrought . . . Per pair.	1.00	1.00
" " Bottom, or Bed Plate . . . . .	.50	.75	" Ball . . . . .	.10	.15
" " Conductor Spout . . . . .	.50	.75	Bolts and Set Screws . . . Each.	.05	.05
" " " " Plow . . . . .	.15	.20	Handle Rod . . . . .	.20	.20
Covering Shoe . . . . .	.25	.40	Handles . . . . . Per pair.	1.00	1.25



# BUCKEYE LAWN MOWERS.

## JUNIOR PATTERN

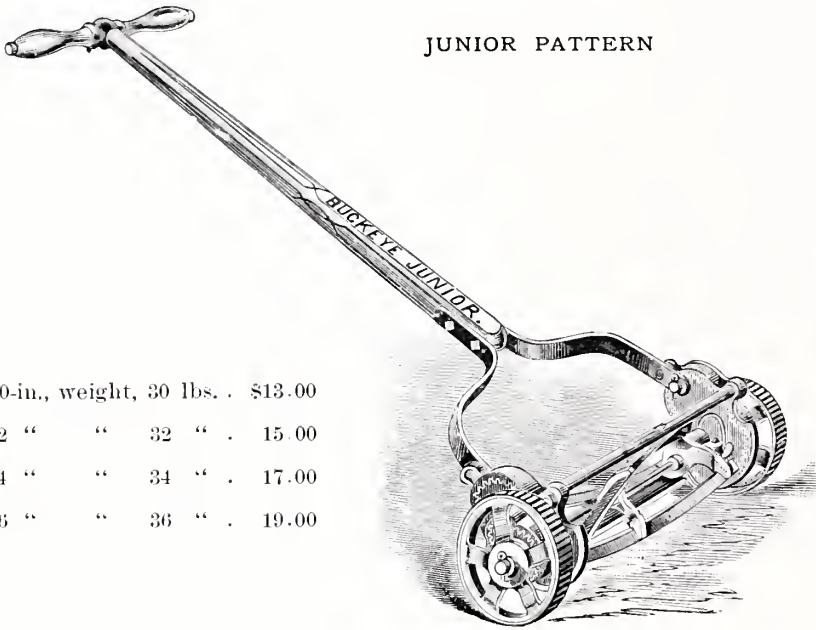


Fig. 2114.	10-in.,	weight,	30 lbs.	. \$13.00
" 2114.	12 "	"	32 "	. 15.00
" 2114.	14 "	"	34 "	. 17.00
" 2114.	16 "	"	36 "	. 19.00

Fig. 2114.

Fig. 2114 represents the Buckeye, Junior, Lawn Mower, which for ten years has been one of the leading machines of the country, and now has the largest sale of any Mower manufactured. The peculiarity of this Mower is the absence of a roller, which, with the reel being placed directly in the centre of the machine, enables it to be used on terraces where any other Mower would fail to do good work.

## SENIOR PATTERN.

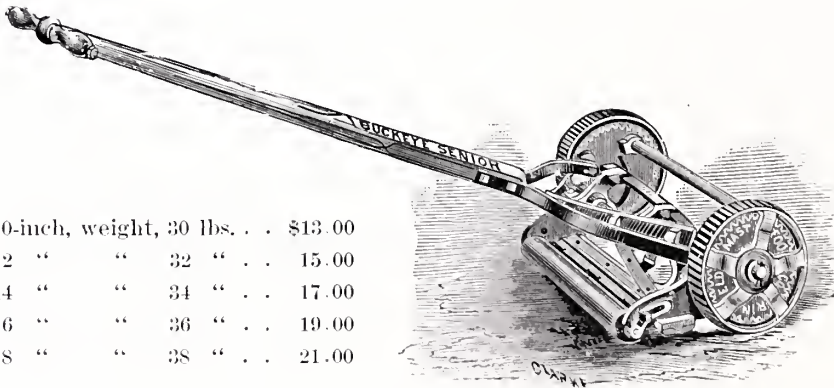


Fig. 2115.	10-inch,	weight,	30 lbs.	. \$13.00
" 2115.	12 "	"	32 "	. 15.00
" 2115.	14 "	"	34 "	. 17.00
" 2115.	16 "	"	36 "	. 19.00
" 2115.	18 "	"	38 "	. 21.00

Fig. 2115.

Fig. 2115 shows another pattern of this popular Lawn Mower, and differs from Fig. 2114 in having a roller which enables the user to regulate the height of cut as desired, and makes this style preferable for uneven surfaces. It is highly finished, well made, of good material, and is warranted to please the purchaser. Write for special prices.

# SPRAY PUMPS.

SEMI-ROTARY "CLOCK" FORCE PUMP.

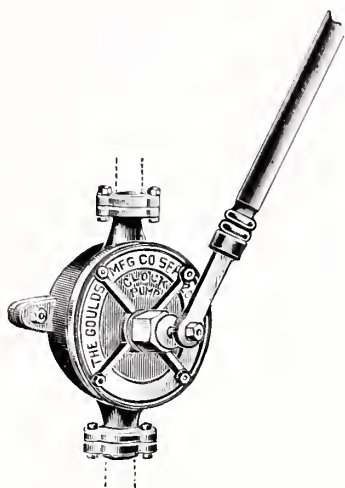


Fig. 2116.

"CLOCK" FORCE PUMP.

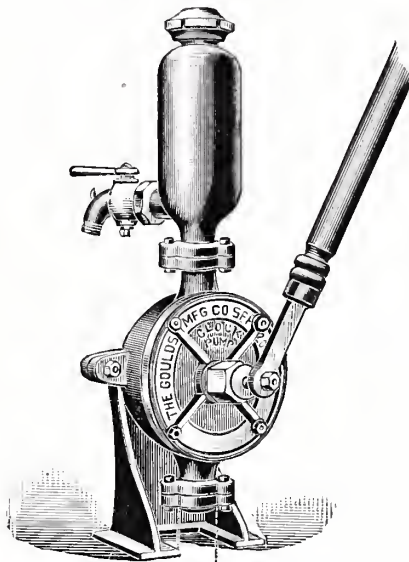


Fig. 2117.

Fig. 2116. Double-acting, with Removable Lever. The commendable features of this popular Pump are the solidity of its construction, the simplicity of its mechanism, the facility of its operation and its low price. It is an ideal Double-acting House Force Pump, occupying a minimum of space, easily operated by a child and needing no repairs. The best proof of its practical value, is its unparalleled popularity. Its different parts are finished and fitted with the greatest possible care, and by comparison with other Pumps the superiority of this will at once be manifest. It is an excellent Pump for wine, oil, liquors, petroleum, etc. It is brass fitted or entirely made of bronze. We can also supply it with a base when it may be inconvenient to place it against a wall or partition

	No.	Suc. and Dis. Pipe, Inch.	Approx. Gal. per Minute.	*Lift and Force, Feet.	Approx. Weight, Lbs.	Brass Fitted.	Brass.
Fig. 2116 . . . . .	1	$\frac{1}{2}$	4	150	17	\$5.00	7.00
" 2116 . . . . .	2	$\frac{3}{4}$	5	150	19	6.00	9.00
" 2116 . . . . .	3	1	6	125	26	7.25	12.50
" 2116 . . . . .	4	$1\frac{1}{4}$	9	125	33	9.00	15.00
" 2116 . . . . .	5	$1\frac{3}{4}$	13	100	43	10.00	18.75
" 2116 . . . . .	6	$1\frac{1}{2}$	19	100	58	12.00	21.25

Fig. 2117. Double-acting, with Removable Lever. This represents another style of our "Clock" Pumps, mounted on Iron Standard, with Air Chamber and Cock. So arranged, these Pumps may be used for drawing water at the spout, or for forcing the water above the Pump to tanks, bath-rooms, etc. Suction and discharge always fitted for wrought iron pipe, unless otherwise ordered. When fitted for lead pipe or hose, an extra charge will be made.

	No.	Suc. and Dis. Pipe, Inch.	Approx. Gal. per Minute.	*Lift and Force, Feet.	Approx. Weight, Lbs.	Brass Fitted.	Brass.
Fig. 2117 . . . . .	3	1	6	125	46	\$12.50	17.50
" 2117 . . . . .	4	$1\frac{1}{4}$	9	125	55	15.00	21.50
" 2117 . . . . .	5	$1\frac{3}{4}$	13	100	73	18.50	27.50
" 2117 . . . . .	6	$1\frac{1}{2}$	19	100	89	22.50	32.50

\* Total lift and force from supply to point of delivery.

SPRAY PUMPS—CONTINUED.

“ALLABOUT” SUCTION AND FORCE PUMP.

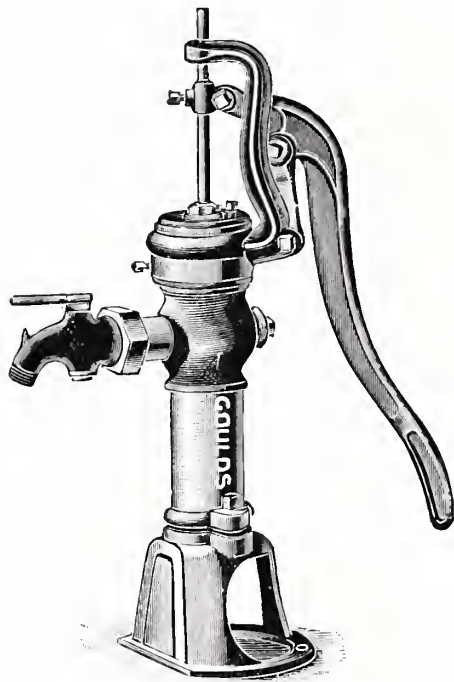


Fig. 2118.

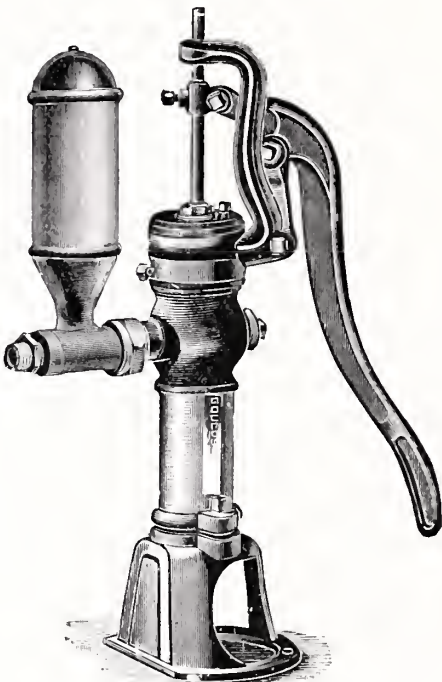


Fig. 2119.

Fig. 2118. With Revolving Bearer Top and Cut-Off Base. Our new “Allabout” Suction and Force Pumps combine some of the features and advantages of our Cistern Pumps, Pitcher Spout Pumps and Force Pumps for house service. The revolving bearer top may be brought into any position, the cut-off base separated in making or breaking pipe connections, and discharge taken either through spout or piped from back opening by removing plug in sight.

Suction is fitted for wrought iron and lead pipe ; discharge for wrought iron pipe and hose.

	No.	Diam. Cyl. Inches.	Suction, Inches.	Double Discharge, Inches.	Stroke, Inches.	Gallons per Stroke.	* Lift and Force, Feet.	Approx. Weight, Lbs.	Price.
Fig. 2118 . .	2	2½	1½	1	2½	⅓ 26	60	33	\$8.50
“ 2118 . .	4	3	1½	1	2½	⅓ 15	40	36	9.50

With Plain Spout in place of Cock Spout, deduct \$2.50 List.

Fig. 2119. With Revolving Bearer Top and Cut-Off Base. Is same in general design and construction as Fig. 2118, described above, except it has additional air chamber capacity, adapting it for somewhat higher pressure service, including spraying trees and kindred services. Suction is fitted for wrought iron and lead pipe ; discharge for wrought iron pipe and hose.

	No.	Diam. Cyl. Inches.	Suction, Inches.	Double Discharge, Inches.	Stroke, Inches.	Gallons per Stroke.	* Lift and Force, Feet.	Approx. Weight, Lbs.	Price.
Fig. 2119 . .	2	2½	1½	1	2½	⅓ 26	75	36	\$8.50
“ 2119 . .	4	3	1½	1	2½	⅓ 15	50	40	9.50

\* Total lift and force from water to point of discharge.



# SPRAY PUMPS—CONTINUED.

“SENTINEL” D. A. FORCE PUMP.

“THRESHER” D. A. FORCE PUMP.

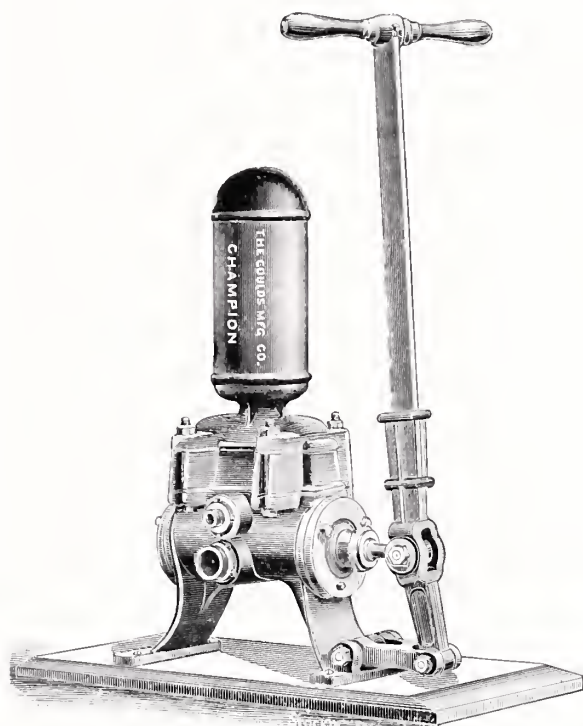


Fig. 2120.



Fig. 2121.

Fig. 2120, with Brass-Lined Cylinder, Brass Valves, Plunger Rod, etc., represents our “Sentinel” Double-acting Suction and Force Pump. The suction and discharge valves are all grouped in one valve chest, and readily accessible by removing air chamber. This arrangement cannot be recommended too strongly, and has already made this Pump a great favorite.

Arranged with a suction and discharge opening on each side of the Pump, and by the use of a Y connection four leads of hose can be utilized for spraying.

Where two leads of discharge hose are used, we fit for  $\frac{3}{4}$ -inch hose; where four leads, we fit for  $\frac{1}{2}$ -inch hose. Suction always fitted for  $\frac{1}{4}$ -inch hose, unless ordered to the contrary.

No.	Diameter Cylinder.	Double Suction.	Double Discharge.	Stroke.	Gallons per Revolution.	* Lift and Force.	Approximate Weight.	Brass Lined. Price.
4	3-inch.	1 $\frac{1}{4}$ -inch.	1-inch.	4 $\frac{1}{2}$ -inch.	$\frac{3}{10}$	75 feet.	111 lbs.	\$28.00

Fig. 2121, with Detachable Wood Lever, Horizontal Double-acting Pump, has a capacity of two Single-acting Pumps of same diameter and stroke, or about 1 to 1 $\frac{1}{2}$  barrels per minute. In the cylinder are grouped the iron, leather-faced poppet valves, resting on brass valve seats, thus obviating a common fault in leather valves which often grow stiff and useless from disuse, and iron valves which will rust fast to iron valve seats.

The discharge valves above are accessible through ports or hand-holes closed with neat plugs, while the suction valves below may be exposed by removing either cylinder head. The solid piston is double crimped packed, and the piston rod, of polished steel, works through a brass stuffing box. The water ways are large and direct, insuring an easy-working and efficient pump.

We fit regularly, as specified below, for 2-inch suction hose and 2-inch open discharge or 1-inch discharge hose by means of reducing half-coupling, which we furnish.

No.	Diameter Cylinder.	Suction.	Discharge.	Stroke.	Gallons per Revolution.	* Lift and Force.	Approximate Weight.	Price.
12	5-in.	2-in.	1 $\frac{1}{2}$ or 2-in.	5-in.	$\frac{7}{8}$	50 feet.	85 lbs.	\$18.00

Can furnish complete with any length suction and discharge hose, couplings, etc., at market rates.

\* Total lift and force from supply to point of delivery.



HOSE PIPE AND NOZZLES.

"BOSS" HOSE PIPE.

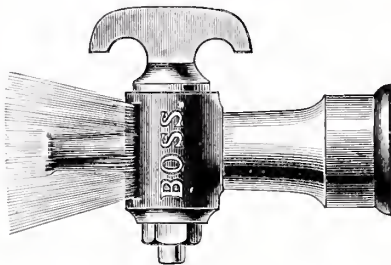


Fig. 2122.

A combination producing mist or spray.

Fig. 2122. 1/4-inch, Nickel Plated. . Each. \$1.00  
" 2122. 1 " " . . " 1.17

BRASS STOP COCK.

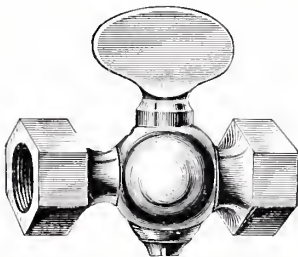


Fig. 2124.

Fig. 2124. Arranged for 1/4-inch iron pipe,  
both ends, or 1/4-inch iron pipe  
and 1/2-inch hose . . . Each. \$1.00

"MAGIC" HOSE PIPE.



Fig. 2123.

Fig. 2123. 1/4-inch. . . . . Each. \$0.75  
" 2123. 1 " . . . . . " 1.00  
Nickel Plated, add 15 cents.

"CYCLONE" NOZZLE.

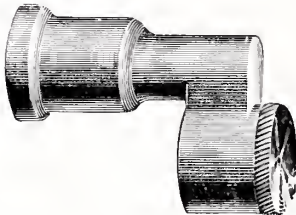


Fig. 2125.

This Nozzle is so arranged that the disc or cap, as shown, can be unscrewed and cleaned out at any time. They are fitted to attach to 1/4-inch pipe, or we can arrange them, at an extra price, with hose attachment.

Fig. 2125. . . . . Each. \$1.00  
" 2125. Side outlet . . . . . " 1.00

"VERMOREL" NOZZLE WITH DEGORGERS.

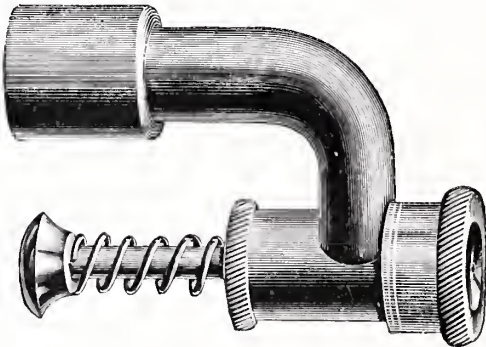


Fig. 2126.

This Nozzle is arranged with a Stuffing Box, so that the liquid will not wet the operator when being used.  
We can fit them for 1/2-inch hose or 1/4-inch iron pipe, as ordered.  
Each Nozzle is furnished with two caps, each with different size openings, for coarse or fine spray. This Nozzle can be used to good advantage in connection with any of our different Spray Pumps.  
Fig. 2126. . . . . Each. \$1.50

HOSE PIPE AND NOZZLES.

CONTINUED.

“VERMOREL” NOZZLE, WITH LANCE AND BRASS STOP COCK.



Fig. 2127.

This Spraying Attachment is 18 inches long and provided with a Degorger, the latter being operated by means of a lever and spring through a stuffing box so that the liquid cannot wet the operator when using the Pump. We fit this appliance, as shown in cut, for  $\frac{3}{8}$ -inch hose. We can arrange them, however, for  $\frac{1}{2}$ -inch hose, also for  $\frac{1}{4}$ -inch iron pipe.

Fig. 2127. . . . . Each. \$2.50

“MASSON” SPRAY NOZZLE WITH STICK CONNECTION.

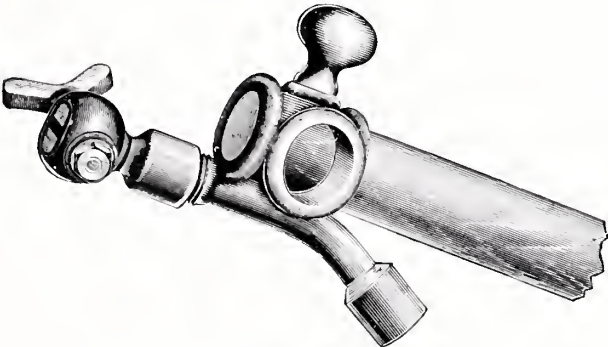


Fig. 2128.

“MASSON” SPRAY NOZZLE FOR IRON PIPE.

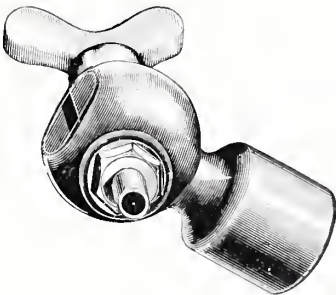


Fig. 2129.

“MASSON” SPRAY NOZZLE WITH LANCE.



Fig. 2130.

COUPLING FOR HOSE AND IRON PIPE.



Fig. 2131.

To clean the Nozzle simply turn the plug across the opening.

Fig. 2128.	“Masson” Spray Nozzle, with four openings, so that stick can be inserted at different angles for $\frac{3}{8}$ -inch or $\frac{1}{2}$ -inch Hose. . . . .	Each. \$2.00
“ 2129.	“Masson” Spray Nozzle for $\frac{1}{4}$ -inch pipe . . . . .	“ 1.50
“ 2130.	“ “ “ with brass lance, fitted for either $\frac{1}{4}$ -inch pipe or $\frac{1}{2}$ -inch hose . . . . .	Each. 2.50
“ 2131.	Coupling for connecting $\frac{1}{2}$ -inch hose and $\frac{1}{4}$ -inch iron pipe . . . . .	“ .25

# BUCKEYE WROUGHT IRON FENCE.

STYLE 17.

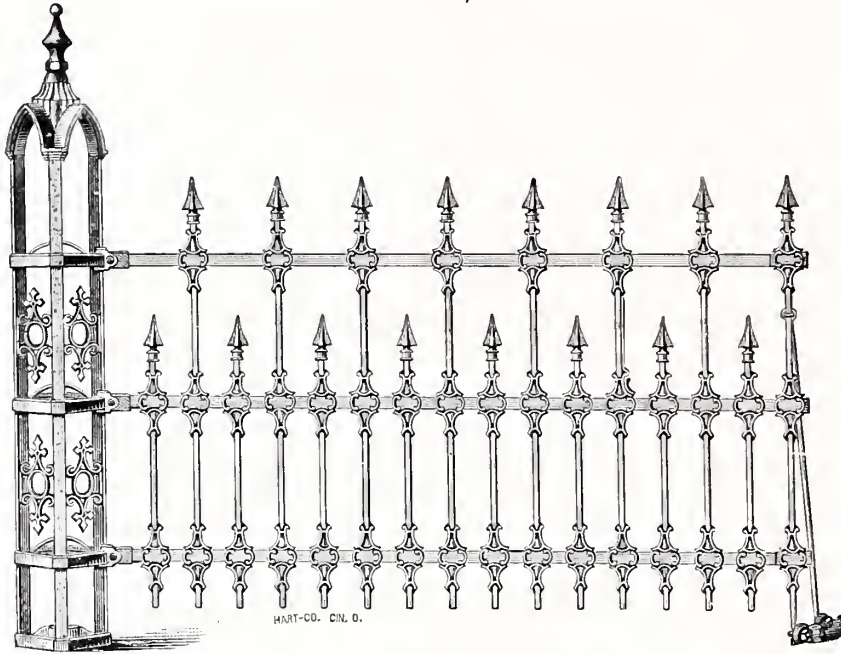


Fig. 2132.

Fig. 2132 shows our No. 17 Style, Spear Top, with 6 x 6 Corner Posts. For Public Buildings, Private Residences, Cemeteries, Parks, etc., etc.

The Buckeye Wrought Iron Fence is now well known the world over, as the sale of this standard article has reached mammoth proportions. Unlike many fences now offered for sale, the Buckeye is made with only one point in view, and that is to secure the best possible results from artistic designs, the use of superior quality of material, and the services of skilled mechanics—in short, the Buckeye Fence embraces all that could be desired in beauty, finish and durability. We mention a few points of superiority worthy of your attention:

1st. The pickets pass through each and extend below the bottom rail, adding very much to the beauty as compared with other punched rail fences.

2d. Each picket is secured at the junction of each rail by a portion of the rail being compressed into a notch in the picket.

3d. In producing the notches in the pickets no material is removed, consequently the picket is not weakened, as is the case in many other fences.

4th. In appearance, our Buckeye Fence is a combination of both the ornamental and plain punched fence, but in construction is far superior to either.

5th. You will notice in our ornamental fence the pickets do not depend on the ornaments for support, but are secured entirely independent of the ornaments.

6th. The Buckeye Fence is made complete in panels of five feet each (except when special lengths are required) by experienced workmen, with proper tools and facilities for doing the work as it should be done. Each order is thus made complete and fitted for its particular place, and when shipped is ready to set up at once without trouble, thus overcoming the annoyance of being shipped in boxes and bundles and to be built on the ground under great disadvantages, and out of just such material as is generally sent out in such cases.

7th. Our fences are all made standard height—pickets being full 36 inches long, or 39 inches from ground to top of picket. This height seems to be the most popular; however, the fence is so constructed that we can furnish it at any height desired. Our price is based on pickets 36 inches high and for longer or shorter lengths 1 cent per lineal foot is allowed, or charged extra, as the case may be.

8th. It is made of heavier and stronger material than any other fence manufactured.

9th. It is very evident that the frost will move any fence, more or less, whether on stone or cast iron bases, consequently we furnish all our fences so they can be put in perfect line at any time without disturbing the foundations. Our fences can be built to suit any grade. If over one inch to the foot it should be so stated in the order.

10th. The Buckeye is the best fence in the world for agents to handle, as no mechanical skill and but little time is required to erect it.

Can furnish fence made from special design, if wanted.

We issue a special catalogue, showing fifty designs. Prices quoted on application.

# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

STYLE 5. TUBULAR IRON RAILING.

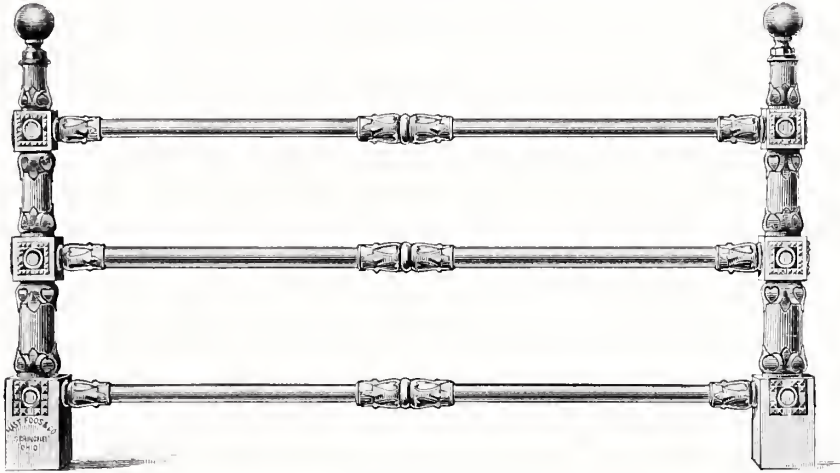


Fig. 2133.

This cut represents Style 5½ Cast Iron Post, with 1½-inch Tubular Railing ornamented with rosettes in centre and at ends. We make this style plain or ornamental, with or without spikes; either two or three rails, as desired.

STYLE 6. TUBULAR IRON RAILING.

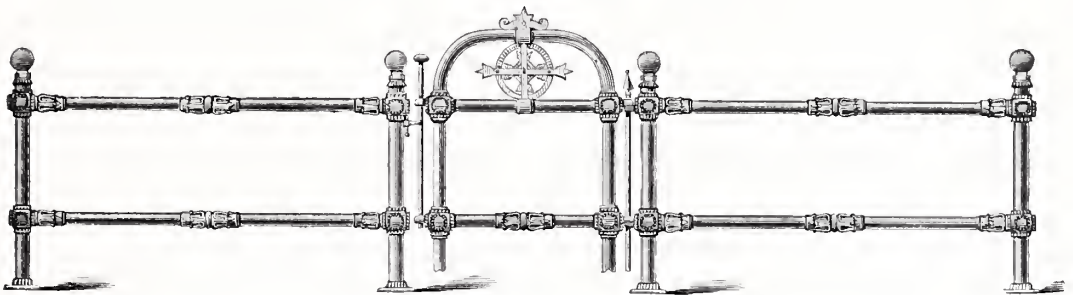


Fig. 2134.

This cut represents our two-inch Gas Pipe Post, Ball Top, and 1½-inch Gas Pipe Railing, ornamented, showing gate to match, all complete as the fence will appear when erected. We make this style Tubular Railing of 1½-inch gas pipe post and 1½-inch gas pipe rail.

Prices quoted on application.



# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

STYLE 5.

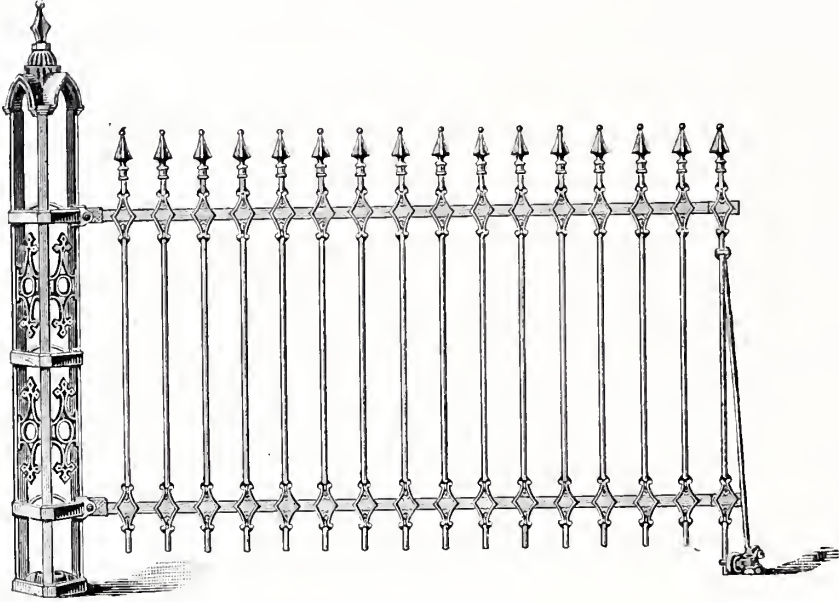


Fig. 2135.

Two-Rail, with Spear Top Picket, ornamental. This is a good, strong and well-proportioned Fence, just ornamental enough to make it handsome, and is a great favorite.

STYLE 6.

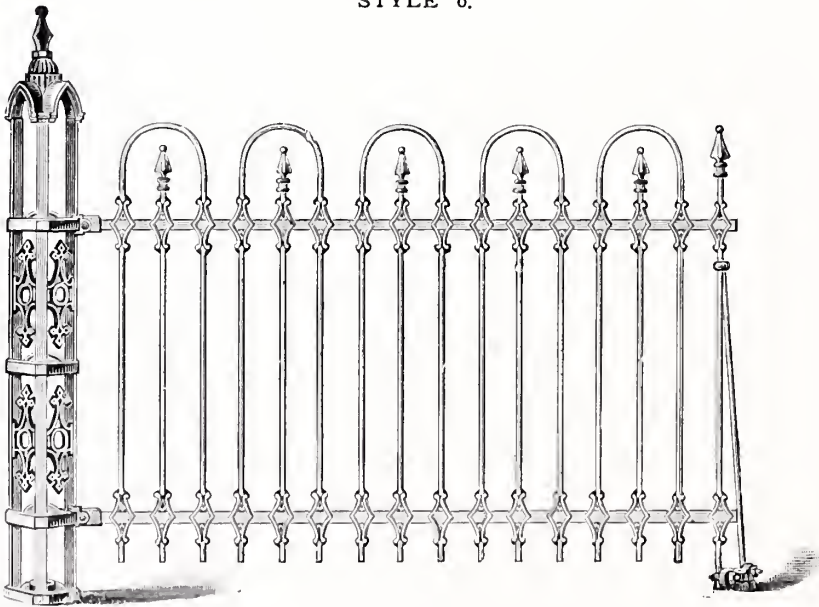


Fig. 2136.

Two-Rail, with 6-inch Bow, and Spear Picket, protected by the Bow. Very desirable and ornamental.

Prices quoted on application.

# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

STYLE 7.

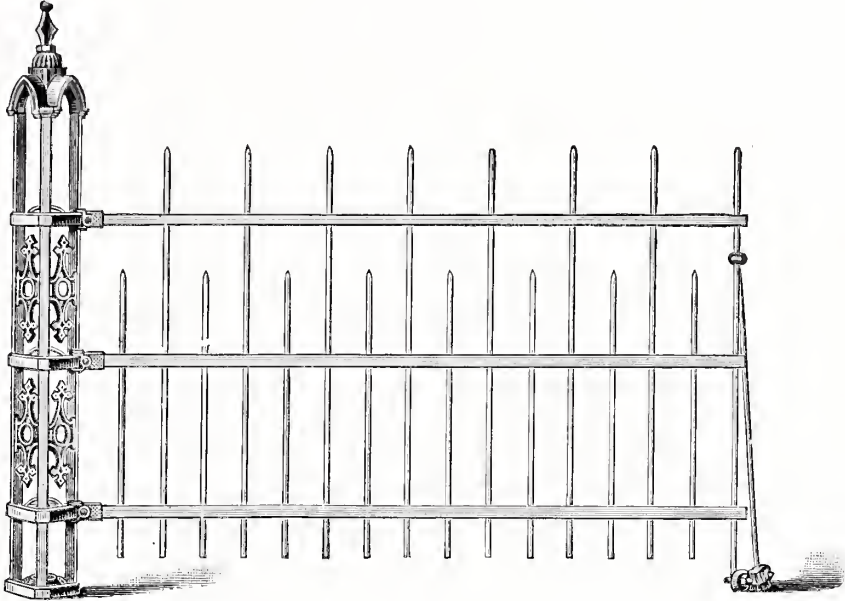


Fig. 2137.

Three-Rail, with Long and Short Pickets, Plain Top. This fence is light and open, but sufficiently strong for front or division fences, cemetery lots, etc., when a plain, neat fence is desired.

STYLE 9.

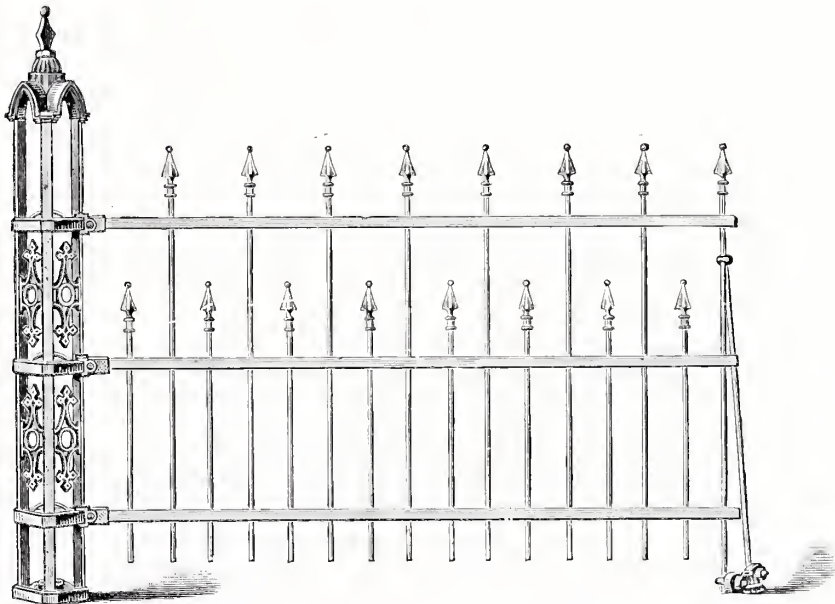


Fig. 2138.

Three-Rail, with Long and Short Pickets, Spear Top. This is one of the most desirable styles of plain fence we make. It is strong and durable; suitable for residences, public grounds, parks, etc. Chaste in appearance.

Prices quoted on application.

# BUCKEYE WROUGHT IRON FENCE.

## CONTINUED.

STYLE 13.

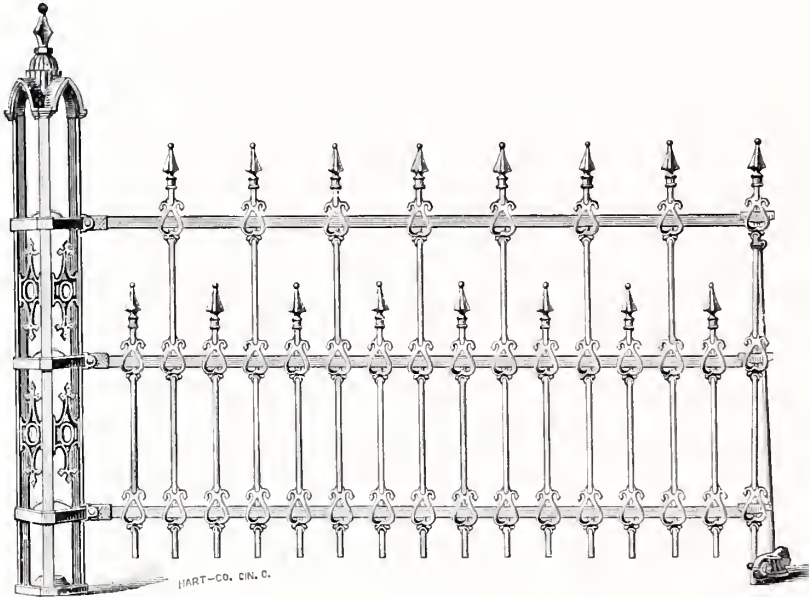


Fig. 2139.

Three-Rail, with Long and Short Pickets, Spear Top. Although not so elaborate as some other ornamental styles, yet the Harp Ornament makes a very handsome appearance.

STYLE 14.

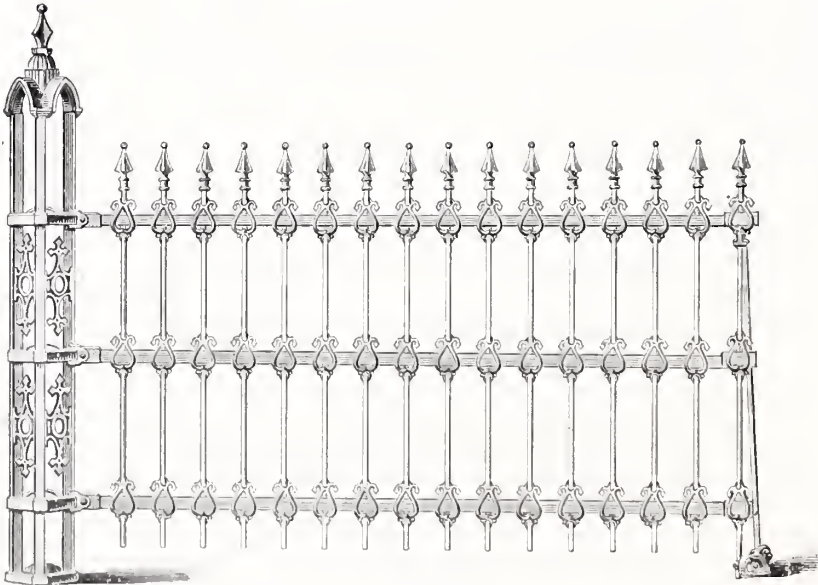


Fig. 2140.

Three-Rail, with all Long Pickets, Spear Top. This pattern is similar to Style 13, except it has all long pickets. Both styles are strong and durable, and suitable for residences. Prices quoted on application.

# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

STYLE 17, WITH EASTLAKE TOP.

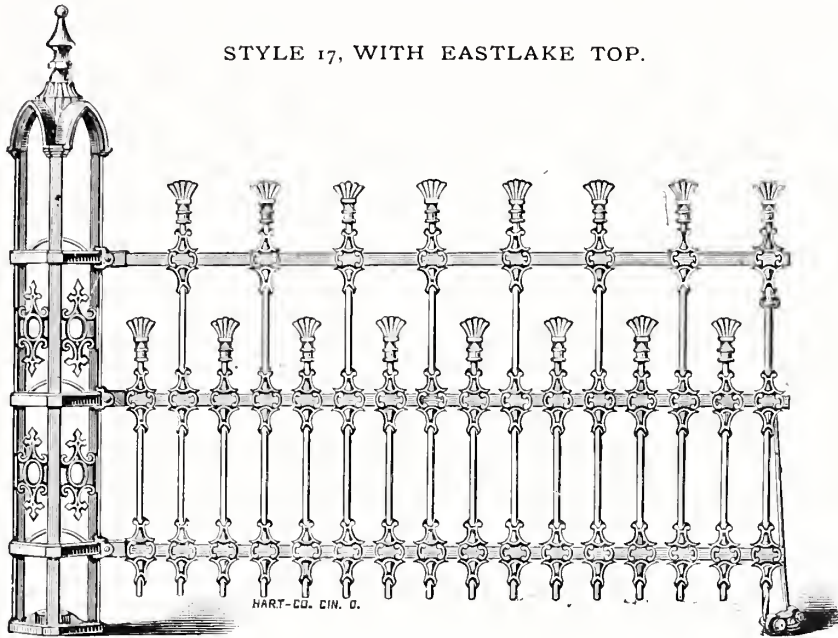


Fig. 2141.

Three-Rail, with Long and Short Pickets, Eastlake Top. This is one of our latest styles and is very beautiful in appearance.

STYLE 18, WITH EASTLAKE TOP.

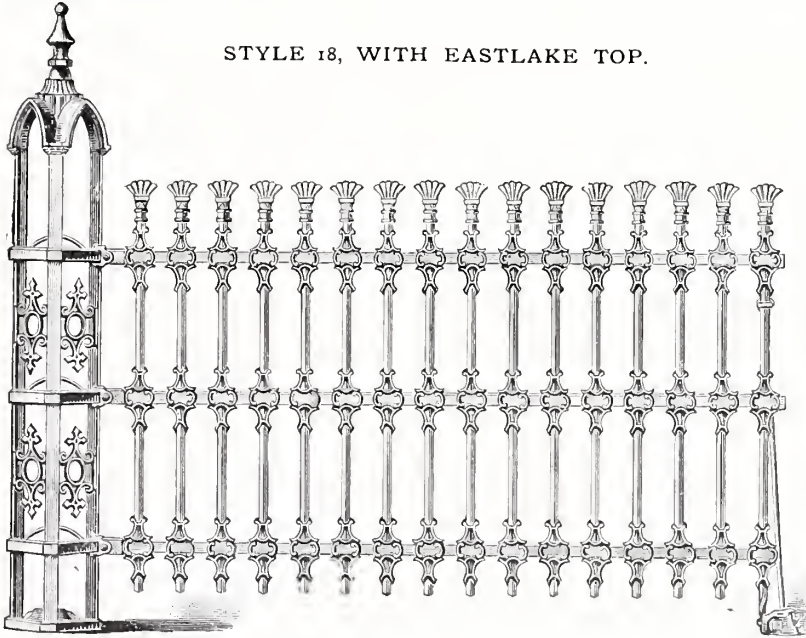


Fig. 2142.

Three-Rail, all Long Pickets, Eastlake Top. A new design, substantial and beautiful.

Prices quoted on application.



# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

STYLE 18.

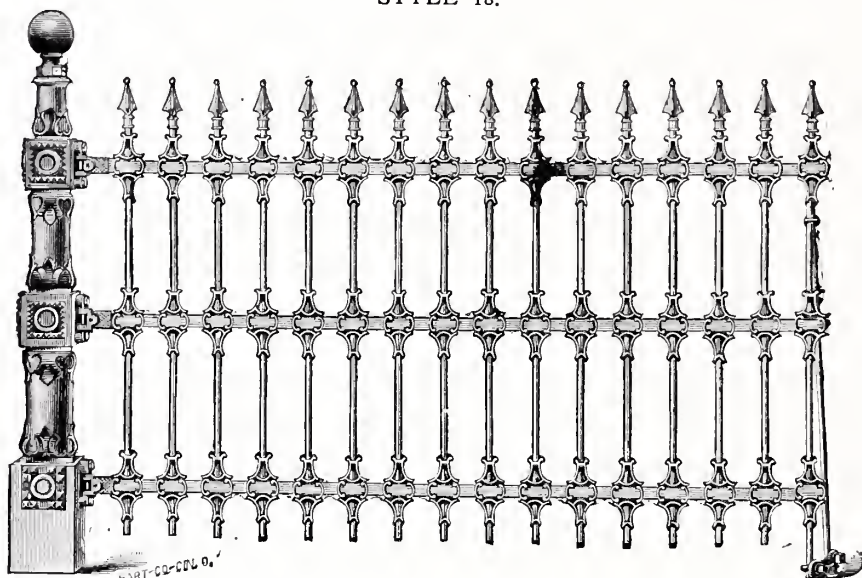


Fig. 2143.

Three-Rail, with No. 5½ Fancy Square Corner Post. A substantial and beautifully ornamented fence.

STYLE 23.

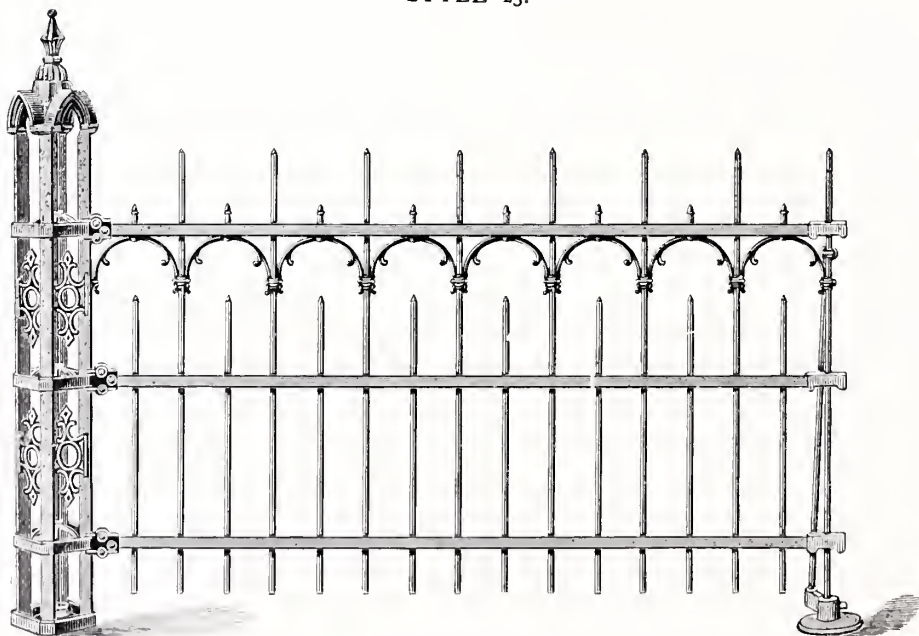


Fig. 2144.

Three-Rail, with Long and Short Pickets. Ornaments under Top Rail, No. 2 Post. This is a new ornament, and can be used on our Style 7, 8, 9, 11, 13 or 22 Fences.

Prices quoted on application.

# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

STYLE 24.

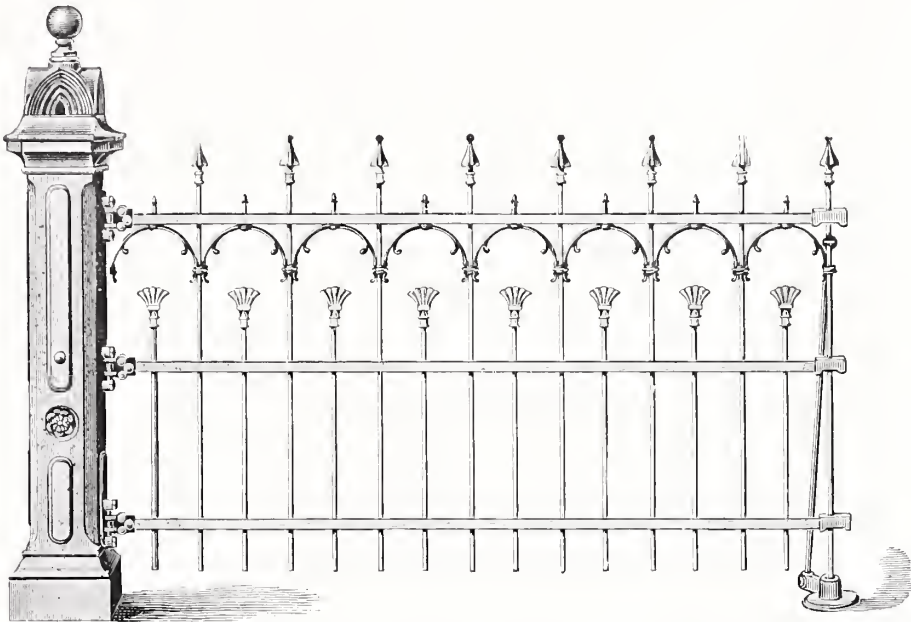


Fig. 2145.

Three-Rail, with Long and Short Pickets. Ornaments under Top Rail, No. 8 Post. This fence can be made with Nos. 2, 4, 5, 5½ or 8 Posts.

STYLE 1.

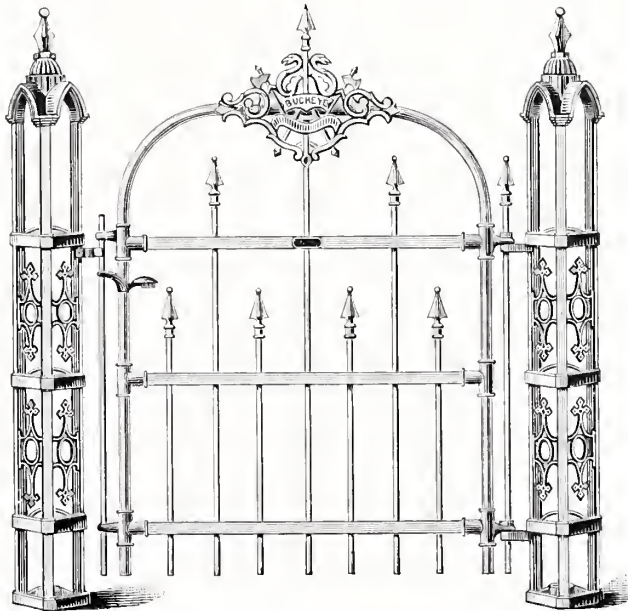


Fig. 2146.

Plain Walk Gate with No. 2 Posts.  
Prices quoted on application.

# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

STYLE 2. ORNAMENTAL WALK GATE.

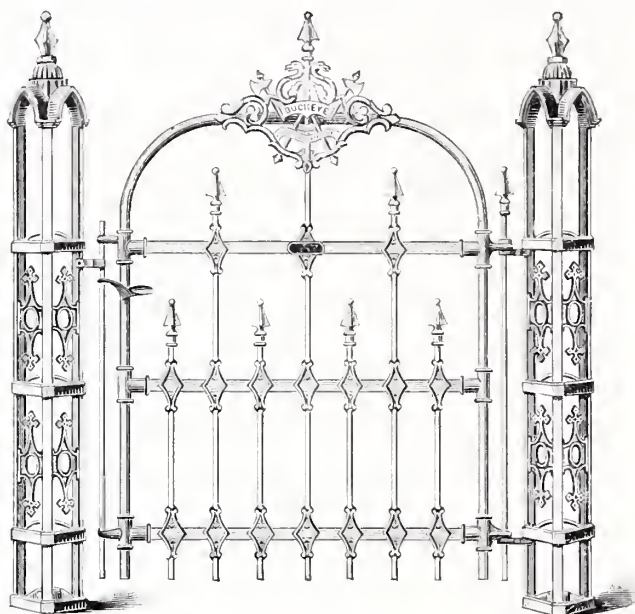


Fig. 2147.

STYLE 3. HEAVY ORNAMENTED WALK GATE, WITH No. 4 POSTS.

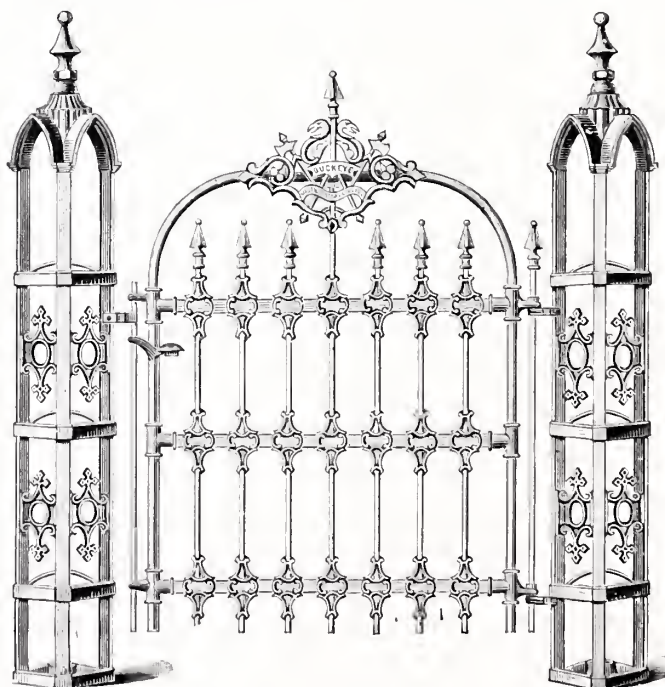


Fig. 2148.

Our Gates are all three-rail, and firmly built. The outside bow or frame being all one piece, makes them very strong, and will always keep their shape.

Prices quoted on application.



# BUCKEYE WROUGHT IRON FENCE.

CONTINUED.

## DOUBLE WALK GATES.

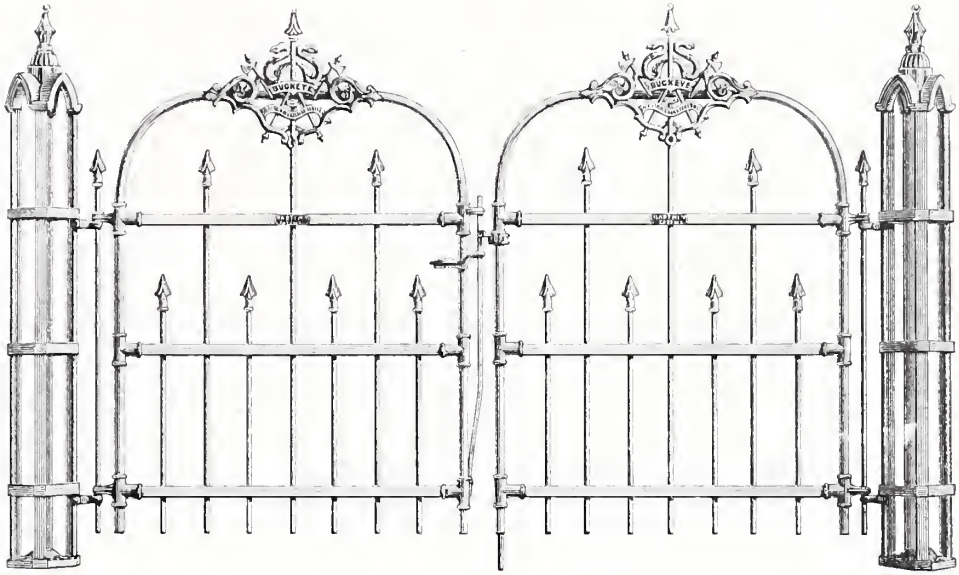


Fig. 2149.

Fig. 2149 shows a set of Double Walk Gates, plain. We can furnish them ornamented, similar to styles 2 and 3, as our customers may desire. We use the new style Posts with these gates, same as shown with Single Walk Gates.

## DOUBLE DRIVE GATES.

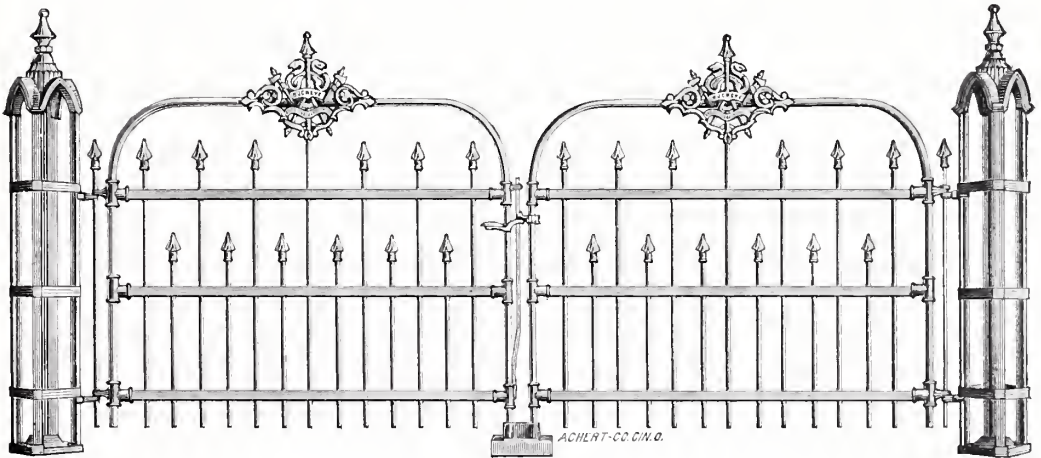


Fig. 2150.

The Gates shown in this cut are plain. We can furnish the same gates and Posts, heavily ornamented, to match any style of fence. We use the new style Posts with the gates, same as shown with the Single Walk Gates.

Prices quoted on application.



## STAIR RAILINGS.

### No. 3. TUBULAR IRON RAILING.

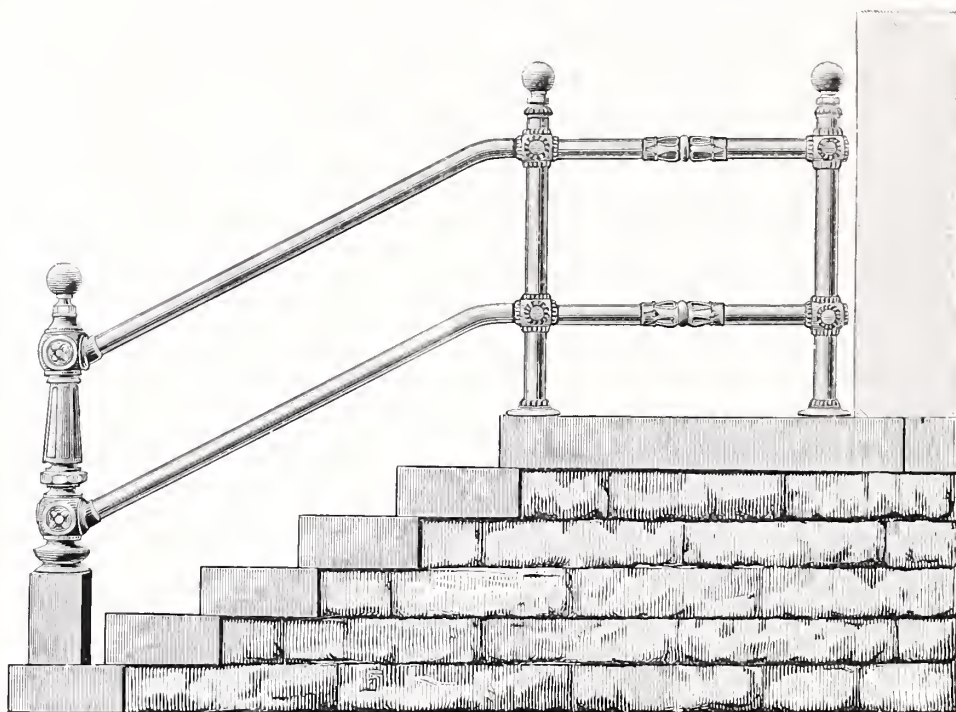


Fig. 2151.

Made of Gas Pipe. Suitable for court-houses, parks, etc.

### No. 2. FANCY STAIR RAILING.

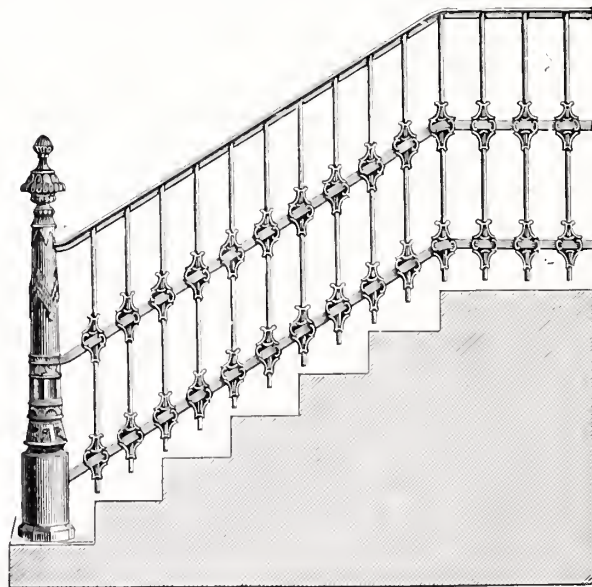


Fig. 2152.

Fig. 2152. Showing No. 5 Fancy Cast Post and Ornamented Pickets. We will ornament these Railings in any style desired.

Prices quoted on application.

## PLAIN AND ORNAMENTAL POSTS.

## HITCHING POSTS.

No. 1.



Fig. 2153.

No. 2.



Fig. 2154.

No. 3.



Fig. 2155.

No. 4.



Fig. 2156.

## FENCE, GATE AND CORNER POSTS.

No. 2.



Fig. 2157.

No. 4.



Fig. 2158.

No. 5.



Fig. 2159.

No. 5 1-2.



Fig. 2160.

No. 6.



Fig. 2161.

Prices quoted on application.

# PLAIN AND ORNAMENTAL POSTS.

CONTINUED.

## FENCE, GATE AND CORNER POSTS.

No. 7.

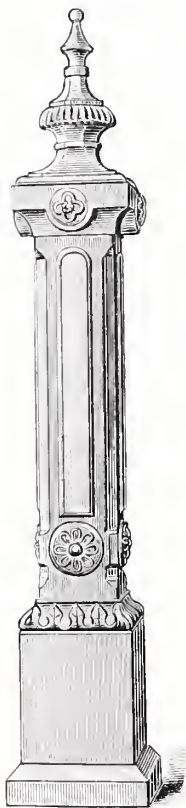


Fig. 2162.

No. 8.

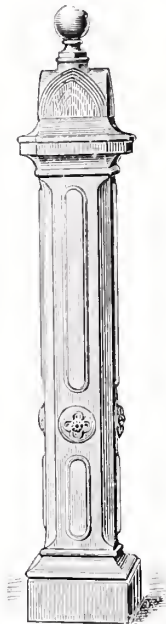


Fig. 2163.

No. 9.



Fig. 2164.

No. 10.

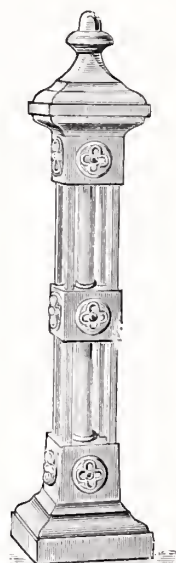


Fig. 2165.

### FENCE, GATE AND LINE POST BASES.



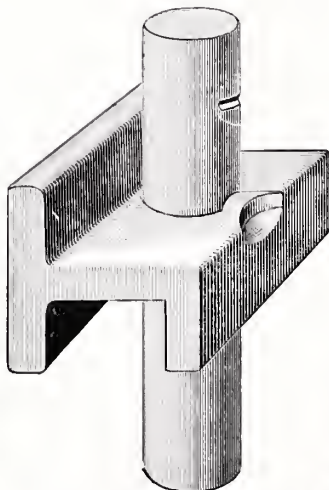
Fig. 2166.



Fig. 2167.



Fig. 2168.



Section of Rail and Picket used  
in the Buckeye Iron Fence.

Fig. 2169.

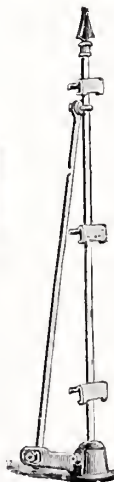


Fig. 2170.



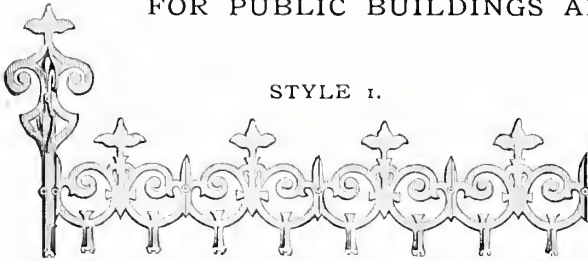
Fig. 2171.

Prices quoted on application.



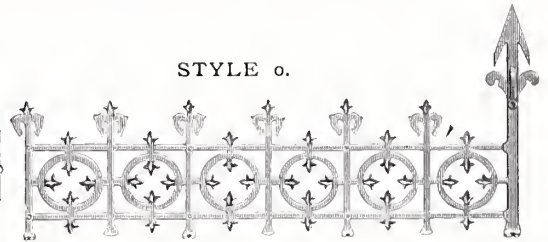
# CAST IRON CRESTINGS.

FOR PUBLIC BUILDINGS AND PRIVATE RESIDENCES.



STYLE 1.

Fig. 2172.



STYLE o.

Fig. 2173.

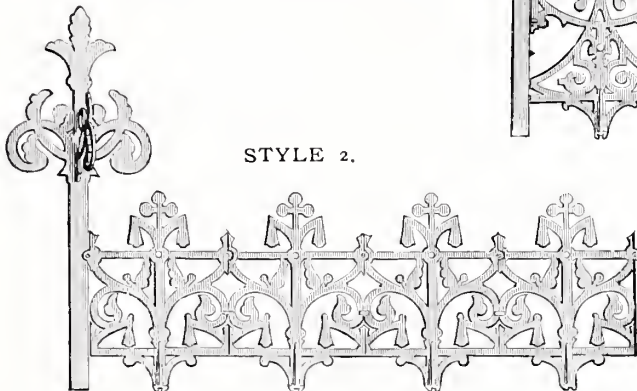
- Fig. 2172. Cresting . . 12 inches high.  
 " 2172. Finials . . 22 " "  
 " 2172. Cresting . . Per foot. \$0.30  
 " 2172. Finials . . . Each. .75  
 " 2174. Cresting . . 20 inches high.  
 " 2174. Finials . . 35 " "  
 " 2174. Cresting . . Per foot. \$0.50  
 " 2174. Finials . . . Each. 1.25

- Fig. 2173. Cresting . . . . 12 inches high.  
 " 2173. Finials . . . . 22 " "  
 " 2173. Cresting . . . . Per foot. \$0.30  
 " 2173. Finials . . . . . Each. .75



STYLE 3.

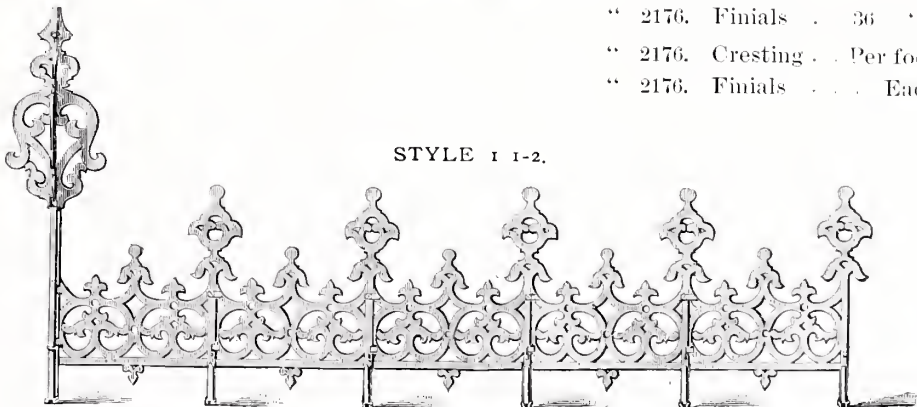
Fig. 2174.



STYLE 2.

Fig. 2175.

- Fig. 2175. Cresting . . 18 inches high.  
 " 2175. Finials . . 34 " "  
 " 2175. Cresting . . Per foot. \$0.40  
 " 2175. Finials . . . Each. 1.00  
 " 2176. Cresting . . 18 inches high.  
 " 2176. Finials . . 36 " "  
 " 2176. Cresting . . Per foot. \$0.35  
 " 2176. Finials . . . Each. .85



STYLE 1-2.

Fig. 2176.



IRON RESERVOIR VASES.



Fig. 2177.



Fig. 2178.

Fig. 2177. Height, 34 inches; Diameter of Vase, 19 inches.  
" 2178. " 34 " " 22 "

Fig. 2177.	Price with Pedestal . . . . .	\$10.00
" 2177.	" without Pedestal. . . . .	8.00
" 2178.	" with Pedestal . . . . .	11.00
" 2178.	" without Pedestal. . . . .	7.00

Send for our complete Catalogue of Vases.



## Wind Engine Department.

---

No department of our extensive business has increased as rapidly as our Wind Engine Department. We have endeavored to excel, not only in variety of the best Wind Engines made, but in excellence of workmanship in all contracts entrusted to us. We have at all times an extensive stock for all purposes, and in number of sales are not exceeded by any jobbing house in America.

It is not our intention to go into details, in this book, of the merits of the various patterns and kinds of Wind Engines which we keep in stock, but we issue for that purpose Special Circulars devoted exclusively to that subject, and we would ask any one interested to send for same.

We have competent Engineers in this department, capable of managing the most extensive jobs; also a large number of experienced workmen, which ensures our customers entire satisfaction. —————



## WIND ENGINES.

At one time in the history of this business it was necessary to devote space to considerable length in demonstrating the fact that Wind Engines were a practical machine, and one adapted to the wants of thousands of our Farmers, Mechanics, etc., etc. It would be very interesting to recite the history of wind as a motive power from the time of Augustus down to the present; but much as we would like to give our readers the interesting story of evolution as connected with Wind Engines, our space will not permit, but would refer to the several writers on this particular subject. We briefly copy from the "Industrial Gazette": The manufacture of Windmills and Wind Engines is one of the important industries of the United States, and to the inventive genius of this country is to be credited the high state of development to which they have been brought. This development has been very rapid, indeed, for the comparatively young man can well remember the cumbersome and ungainly affairs of his boyhood days, and can trace the growth of the industry from its infancy, and the first valuable improvement of the Windmill to its present standing among our manufacturers. The demand for wind power increases steadily because of the many and varied purposes to which power thus acquired can be economically applied, and through this demand a great industry has been built up, which promises to be permanent, and give employment to a vast number of skilled workmen. It has called to its aid the very best of inventive and mechanical skill, and no one doubts that great strides are yet to be made in the direction of economy and utility of Windmills and Wind Engines.

The origin of the Windmill is one of the secrets which antiquity refuses to divulge. That Windmills were well known economic appliances long before the Christian era, is an admitted fact, but it is difficult to discover the first mention of them in history. Knight's American Mechanical Dictionary, treating the subject of Windmills, says they were first introduced into Rome from Greece, and were used for grinding grain. This was a little before the time of Augustus. In the "Spiritalia" of Hero of Alexandria, 150 B. C., there is a description of an organ blown by the agency of a Windmill, which worked the piston of an air pump. Beckman, in his "History of Inventions," denies that the Romans had Windmills during the period of the empire. They were not uncommon in Europe at the time of the Crusades. They are mentioned in England in A. D. 1180, and from the twelfth to the fourteenth century notices of them are common. Mabillon mentions, A. D. 1105, in which a convent is allowed to build Water and Windmills. Bartolomeo Verde had a grant of land to build Windmills in Venice in 1332. They were used in Spire in 1373, and at Frankfort in 1442. In the twelfth century the Pope decided that Windmills were titheable.

It is stated that the first mode adopted to present vanes toward the wind was to plant the mill and turn it in the wind as occasion required. The next was to put it on a post and turn the building on this, as an axis. This was called the German method. The next was to turn the cap or roof. This was a Dutch invention, in the sixteenth century.

The principal parts of the old-fashioned Windmill consisted of an axle, inclined to the horizon at an angle of eight degrees to fifteen degrees, and carrying at its outer end bun sail frames or whips, usually about forty feet long, consisting of a long tapering bar of wood with short cross pieces, whose extremities were connected to each other by a wooden strip. Upon these frames the canvas sails were spread. Reefing arrangements were sometimes provided to diminish the area of the sails during high winds. The whole frame of the mill turned upon a vertical shaft, and by means of a lever was adjusted to cause the sails to present their surfaces directly to the wind. In 1772 Andrew Meikle, of Scotland, invented a plan for automatically adjusting the area of the sails to the force of the wind; and in 1804 Bywater, of Nottingham, Eng., patented a method of rolling up the sails to adjust them in like manner by means of a weighted lever, which was caused to operate gears, connected by cords to cylinders on which the sails were wound. The ball governor was first used on Windmills, and James Watt, it is generally supposed, borrowed the idea from thence.

Holland is said to have, at present, over 12,000 Windmills in operation, averaging eight horsepower each. The annual outlay in this direction is computed at \$4,000,000. The Windmills are there employed in driving the scoop wheels which drain the polders.

Of the modern Windmill and Wind Engine, columns of great interest to readers could be written. We believe, however, that brief descriptions of the most approved types will prove of interest, and the following pages present such descriptions, with illustrations:

A glance at the cuts on pages 750 and 751, showing Wind Engines as made and utilized many years ago, with their large and cumbersome arms, erected at great expense, and then a glance at the

## WIND ENGINES — CONTINUED.

modern engines of leading makes of the present day, as shown on the following pages, with their light and graceful appearance, will show you the improvements in this class of machinery during the past century. The use of wind as a motive power has been discussed in all its bearings by scientific and agricultural journals, thousands of Windmills are in successful operation, and it would be a waste of time for us to present an argument in favor of their general use, as every intelligent man now recognizes their value.

**WATER FOR SMALL TOWNS AND VILLAGES**—Many small towns and villages are deprived of the many advantages of running water, because of the expense of city water works, so-called, requiring either an extensive reservoir capable of holding many thousands of gallons, situated at some convenient height for getting the necessary fall to the village, requiring in some cases miles of pipe of large diameter, or else an extensive stand pipe with a steam pump plant to furnish the supply of water.

Many villages are divided in regard to the water supply question, owing to the fact that the entire population would be taxed for that which would benefit but a few, as is the case where the population is widely scattered, and only where the thickly-settled sections would be benefited. To all such villages we would say: Those who wish running water can be supplied at comparatively small cost by our system of Wind Engine service. To the person who puts in a plant of large enough capacity to supply his neighbors, an investment, it has always brought handsome returns on the amount invested. To those who collectively have put in a system for supplying their homes and farms it has always resulted in their securing their water supply at a small annual rental.

We will gladly furnish estimates on any desired plan, either large or small, and our long experience will enable us to give valuable information.

**VALUE OF WATER FOR STOCK**—Stock should have access to water at all times, especially cows that give milk. They want to drink often and return to their feed. The best stable, and one in which stock do the best, is one where water is always running in through troughs before the cattle. Thus managed, cows may be kept up to a full flow of milk, either winter or summer. If the pasture fails from drouth it may be supplanted with other feed, but a failure of water cannot be remedied. So in winter, cows that are watered only once a day, as many do who consider themselves good farmers, shrink in their milk and it can never be regained. The same rule will hold good in the stable; abundant food may be supplied, but if the water supply fails the profit will be *nil*. The necessity of pure water for stock is of the first importance to breeders and feeders. It must not only be in abundance, but it should be in such supply that stock may either take it at will, or if supplied at stated times it should be offered at least twice a day, and three times will be better. No animal can thrive properly that has access to water but once a day. Every good feeder knows this, and hence, in all large feeding establishments, the greatest care is taken to keep the supply ample and constant. Many farmers neglect this, and always to their cost. If water cannot be had near, in any other way, wells should be made and water raised by a Wind Engine, so that the stock may get it as regularly as they feed. It will pay. Remember that animals should be treated well in order to thrive properly. We are familiar with troubles incident to the neglect of regularity in food and drink with the human body, and the consequences are somewhat analogous to our cattle.

Wind Engines are indispensable to furnish cold well water for the milk room, as ice is often inaccessible and always expensive. Cold well water is found to best meet all the requirements of the dairy interest; it is of the right temperature, and is kept fresh and pure by constant renewal. Its ebb and flow is also favorable to carry off the animal heat, hence the value of the cold water system.

Here again Wind Engines have met the water problem, making it possible for every farmer to have a living spring at his door and under his control. The prairies of the West are rapidly becoming dairy farms by virtue of the new enterprises created for them by wind power, increasing their productiveness and value.

**FOR HOUSEHOLD PURPOSES**—Most of the farmhouses and suburban residences are supplied with water from wells, and many of them very deep ones. Those who are familiar with the constant demand for water for washing, cleansing, cooking and other household purposes, know the labor it requires to pump the water necessary, and that labor often done by the already overburdened housewife. Generally, by a very little additional expense, the stock Wind Engine is made to supply all the needs of the household with an abundance of fresh water, and so arranged as to store up



WIND ENGINES—CONTINUED.

water in tanks, and from thence drawn with faucets for house use, or with hose for watering flowers, sprinkling lawns, washing carriages and running fountain jets, etc. To supply suburban residences, hotels, watering places, seminaries, charitable and public institutions, with cool, fresh, pure and sparkling water the Wind Engine is especially adapted, bringing the luxury of city water works to the home of any one at a much smaller cost than paid by consumers in the city.

It is very noticeable that a large number of Wind Engines are now being erected each year in cities and towns which are already supplied with running water. This is caused by the exorbitant rates charged by some water companies, and by the inferior water furnished by others. The amount expended each year for water rates would in a few years pay for a plant as shown on page 771. We refer to this particular job, as its owner supplies pure Artesian Well water to six houses besides his own, which brings him handsome interest on the amount invested. This plant is used, as many others are, in preference to "City Water Works."

FACTS WORTHY OF ATTENTION—All investments are made subject to the amount of returns each year, or in other words, all investments are made where the best interest will be paid.

There are probably 100,000 Wind Engines in use in this country, and if it were possible to get the united report from the owners of these engines in answer to this direct question: "What interest on your investment does your Wind Engine bring you each year?" we are very sure it would be surprising.

We have tried the experiment among 100 owners, and while the remarks "Would not part with my water supply;" "Could not farm without it;" "Would not take \$1,000 for my engine," etc., are often heard, not one of the 100 reported that the saving was less than 20 per cent. and from that to 100 per cent. What does this prove? A water supply is one of the best paying investments a farmer or suburban resident can make.

Recently a farmer of 70 years' brought up to use the pump handle in supplying water for a large stock, made the following remark to us: "I have supplied our stock from that pump for over 40 years." On inquiry we learned that two hours each day were consumed in working the pump handle. Much was the surprise of the "old school" farmer when we easily computed that three and a third years of that 40 had been passed at the pump handle.

Secure our circulars, get our estimate, and we are satisfied you will make the investment that will pay you the greatest dividend.

PRESSURE OF THE WIND.

The following Table shows the pressure of wind at different velocities :

Description of Wind.	VELOCITY.		Pressure per Square Foot in Pounds.
	Miles per Hour.	Feet per Minute.	
Hardly observable . . . . .	1	88	.005, or about $\frac{1}{12}$ of an ounce.
Just perceptible . . . . .	2	176	.02, " $\frac{1}{6}$ "
Light breeze . . . . .	3	264	.045, " $\frac{1}{4}$ "
Gentle, pleasant wind . . . . .	4	352	.08, " $1\frac{1}{8}$ "
Fresh breeze . . . . .	5	440	.125, " 2 ounces.
Brisk blow . . . . .	10	880	.5, " 8 "
Strong wind . . . . .	15	1320	1.125, " 1 lb. 2 ounces.
Very strong wind . . . . .	20	1760	2.
High wind . . . . .	25	2200	3.125
Very high wind . . . . .	30	2640	4.5
Gale . . . . .	35	3080	6.125
Violent gale . . . . .	40	3520	8.
Hurricane . . . . .	50	4400	12.5
Tornado . . . . .	60	5280	18.
	80	7040	32.
	100	8800	50.

From the above Table it will be seen that with a velocity of four or five miles per hour, the pressure is less than two ounces per square foot of wind surface, and that its effective force depends entirely on the velocity.

# DIRECTIONS IN ORDERING OR ASKING FOR ESTIMATES.

In ordering Wind Engines of us or asking for estimates, it is very essential that we should have a clear idea of the uses for which the Wind Engine is intended, so as to furnish the necessary instructions regarding the selection of fittings as well as to furnish plans for towers, etc. In making estimates it is important so as to enable us to include all the necessary attachments.

## FOR PUMPING OUTFITS.

- 1st. Depth of well or spring from surface of ground to bottom?
- 2d. Depth of water in dry seasons?
- 3d. Height above the platform of well to where water is to be delivered?
- 4th. Distance from centre of well to each place of delivery?
- 5th. Quantity of water required each day, or number of horses, cattle, hogs or sheep to be watered?
- 6th. Size of tank, and whether round or square?
- 7th. Height from platform of well to top of tank?
- 8th. Distance from centre of well to centre of tank?
- 9th. If a bored well give size of bore.
- 10th. If a driven well, give depth from surface to bottom of drive point.
- 11th. Height that derrick should be so that the wind will have a free passage to the wheel, which should be at least ten feet higher than surrounding buildings, trees, etc.?
- 12th. A rough sketch showing relative position of well, tank and each place where water is to be delivered.

## FOR POWER PURPOSES.

- 1st. Height surrounding obstructions which might prevent a free sweep of air against the wheel; also nature of surrounding country?
- 2d. Elevation of highest post of roof if rested on building?
- 3d. Length of line shaft, if any, and its height from ground to floor?
- 4th. Height of Grinder above floor, and its location?
- 5th. Size and speed of pulley on any machine you may have to run, and horse-power required for each machine.
- 6th. Kind of pump to be operated, if any, and its location with reference to tower or building?
- 7th. Other particulars, the same as required for pumping outfit, if a pump is to be operated.

## TO CORRESPONDENTS AND CUSTOMERS.

We are often asked: "Does the price of Wind Engine include the Tower?" "Does it include the Pump?" etc., etc. For the information of all interested we would say, there are seldom two outfits that are exactly alike, each differing from the other either in height of tower, size of pump or some detail, which requires special attention. It is, therefore, impossible to List these goods by combinations, and our prices are based as follows:

A Wind Engine for pumping, includes the engine, complete, to furnish the power for operating the pump and the necessary pump rods to connect the engine with the pump. A Wind Engine for power, includes the engine only; does not include the upright shafting boxes or attachments necessary to use at bottom of shafting.

The price of Pump does not include suction or discharge pipe, but merely what is represented under the particular List of pump selected.

We employ constantly a large force of experienced mechanics for the purpose of putting up our Wind Engines, Pumps and Tanks, whose services we are pleased to furnish for a reasonable compensation, including all necessary expenses.

In cases where it is desirable that the entire plant should be let out as a contract, we hold ourselves in readiness to make estimates and plans, if necessary for the requirements, and in all such cases we must insist that all contracts be made in writing, for our own protection and that of our customers.

It gives us pleasure to hear from all intending purchasers of goods in our line, and any information we can give will be furnished promptly, and does not place our friends under obligations to place their order with us unless we can show them it will be for their interest.

## WIND ENGINES — CONTINUED.

A WIND ENGINE OF "YE OLDEN TYMES."



Fig. 2179.

ERECTED A. D. 1770; PHOTOGRAPHED FOR US IN 1890.

Special Circular of Wind Engines furnished on application.

## WIND ENGINES—CONTINUED.

A WINDMILL GRINDING ARROWROOT IN BARBADOES.

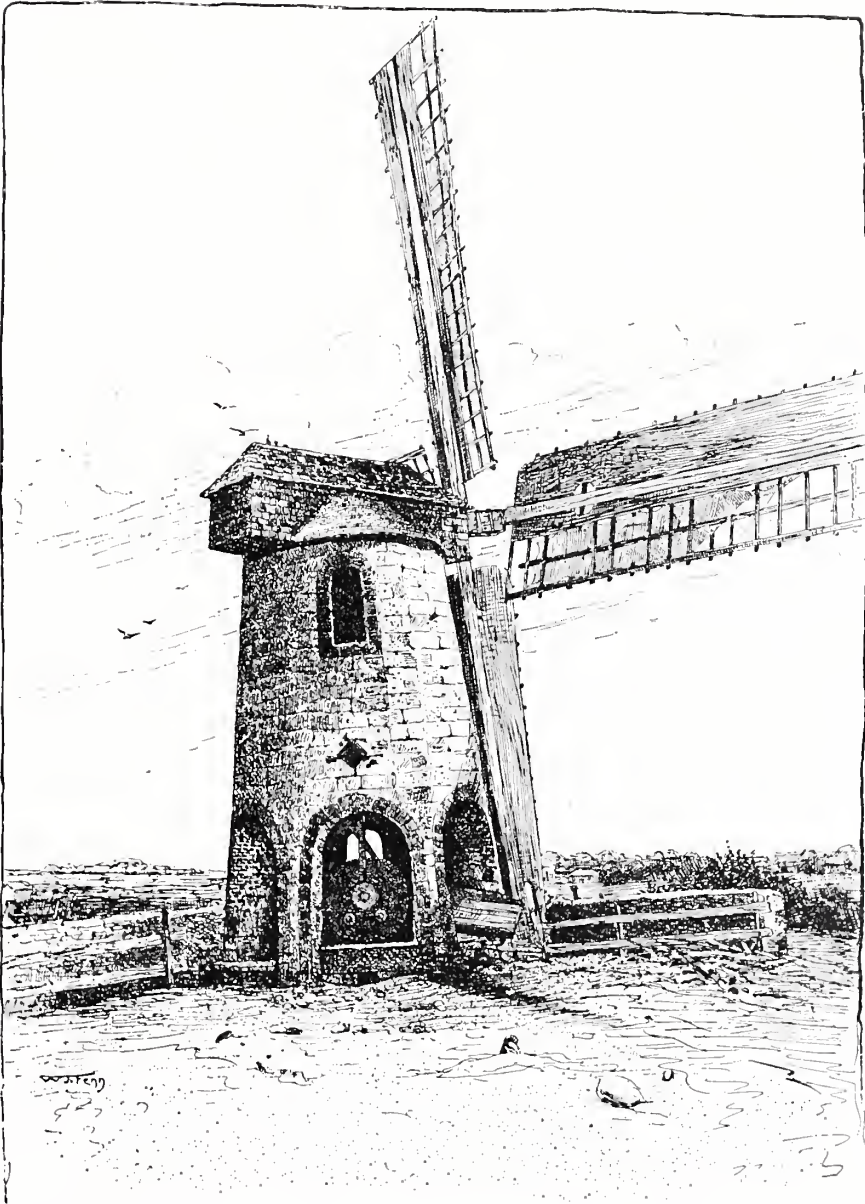


Fig. 2180.

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.



Fig. 2181.

This cut represents a 12-foot Steel Wind Engine and 5,000-gallon Tank, on frame 35 feet to bottom of Tank, supplying four summer residences. (Property of George H. Phelps, Osterville Beach, Mass.)  
Special Circular of Wind Engines furnished on application.

## WIND ENGINES—CONTINUED.



Fig. 2182.

The above cut, made from a photograph, shows 12-foot steel Wind Engine, over 14,000-gallon Tank, 45 feet to bottom of same, and is intended to furnish water for stable and two large, elegant fountains. This is a well-proportioned and handsome job throughout, being placed by us, including piping and all attachments. (Property of Denman Thompson the actor, summer residence, Swanzey, N. H.)

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.



Fig. 2183.

This is one of the hundreds of similar jobs we have erected here in New England, consisting of a 15,000-gallon Tank, and 16-foot Steel Wind Engine.

Special Circular of Wind Engines furnished on application.



This cut represents 8-foot Steel Wind Engine and 1,500-gallon Tank, on frame 25 feet to bottom of Tank, supplying summer residence at Falmouth, Mass. (Property of Geo. F. Hewett, Boston, Mass.)

Fig. 2184.

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.

A SCENE ON A CONNECTICUT FARM.



The above represents a 12-foot Steel Pumping Wind Engine. On the ground you will notice the broken remains of a wooden wheel. This should leave no doubt of the superiority of the steel wheel. This photograph can be duplicated quite often here in New England.

Special Circular of Wind Engines furnished on application.

Fig. 2185.

## WIND ENGINES—CONTINUED.



Fig. 2186

The above illustration represents a model country water supply. (Property of A. P. Carroll, Niantic, Conn.)

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.



This cut shows 10-foot Wood Wheel Wind Engine on Tower 55 feet high, with Tank holding 2,500 gallons; 25 feet to bottom of Tank. Sets on high elevation, and supplies the Ocean View Hotel. (Property of D. K. and L. H. Phillips, Pigeon Cove, Mass.)

Special Circular of Wind Engines furnished on application.

Fig. 2187.

## WIND ENGINES—CONTINUED.



A beautiful New England home, ornamented with an 8-foot Pumping Wind Engine on a 50-foot Steel Tower, supplying abundance of water for all purposes. (Property of Colonel Moore, Walpole, Mass.)

Fig. 2188.

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.



Fig. 2189.

This is a very solid and substantial structure, being made of hard pine throughout, excepting the Tank, which is of cypress. The Tank is 15,000 gallons capacity, mounted by a 16-foot Pumping Wind Engine over an Artesian Well, sunk by us, 850 feet deep. We also supplied these buildings with a complete fire service from the tank. (Property of Commonwealth of Connecticut, Storrs College, Mansfield, Conn.) Special Circular of Wind Engines furnished on application.

## WIND ENGINES—CONTINUED.



Fig. 2190.

The cut above shows 12-foot Steel Wind Engine on Tank holding 9,000 gallons, 30 feet to bottom of same, supplying water for a large farm. (Property of H. C. Valentine, Pittsfield, Mass.)

Special Circular of Wind Engines furnished on application.

## WIND ENGINES—CONTINUED.



Fig. 2191.

The above illustration represents a 30,000-gallon Tank on a 50-foot Tower, and mounted with a 16-foot Pumping Wind Engine, operating a 6 x 18 Pump. A model plant for supplying a small town. (Property of Hazardville Water Company, Hazardville, Conn.)

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.



Fig. 2192.

Fig. 2192 is a very handsome Water Supply, and consists of a 5,000-gallon Tank on a 30-foot hard pine frame over an Artesian Well, and mounted with a 12-foot Pumping Wind Engine. (Property of J. A. Atwood, Wauregan, Conn.)

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.

A FARM SCENE NEAR BREMEN, GERMANY.

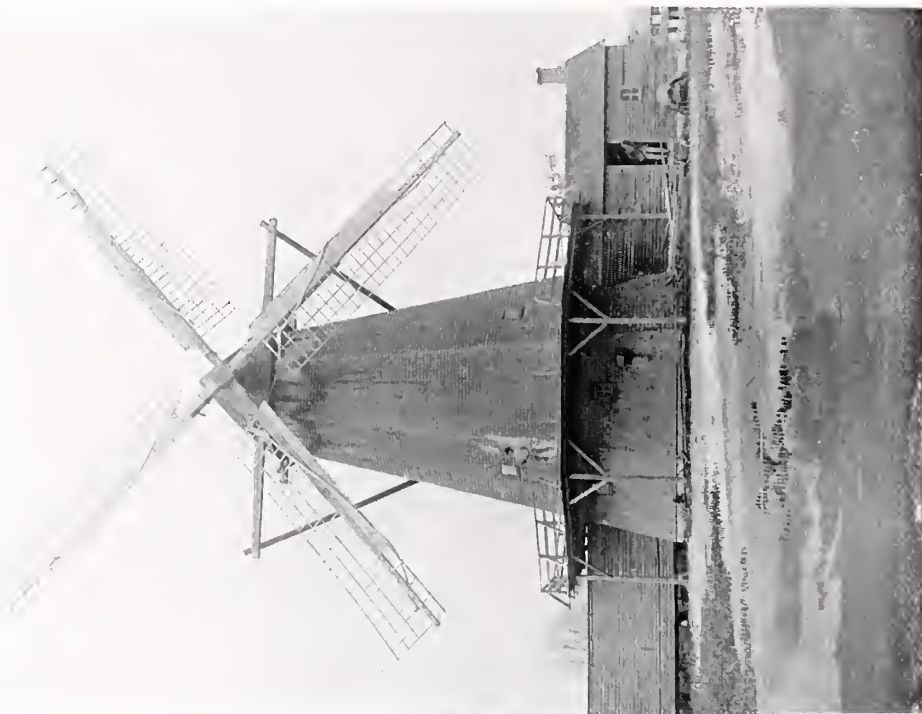


Fig. 2194.

A SCENE IN FLUSHING, BELGIUM.

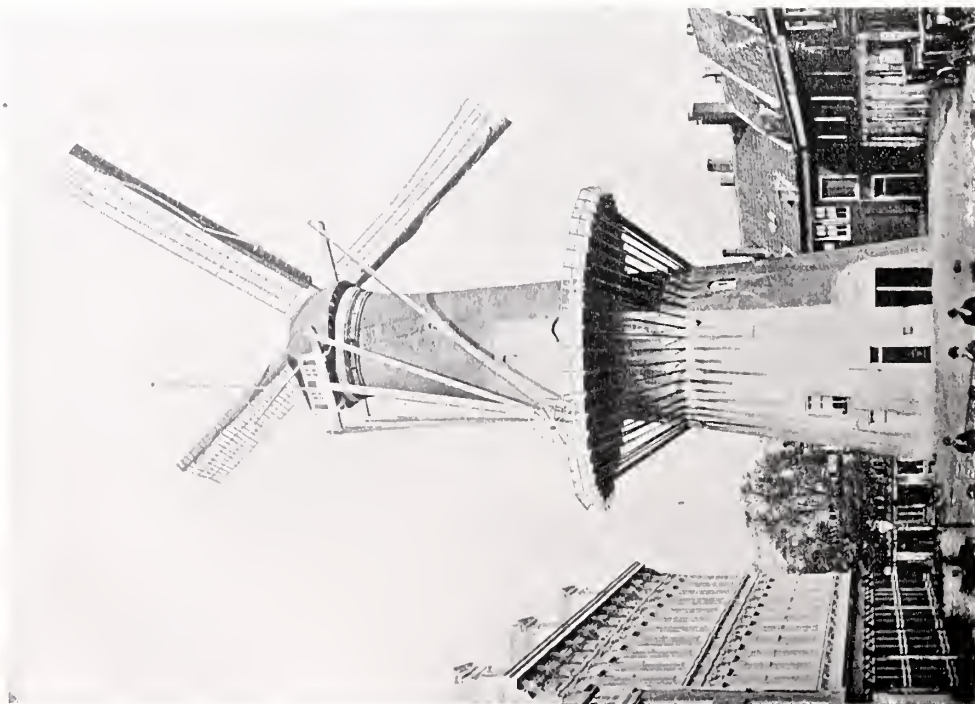


Fig. 2193.

Special Circular of Wind Engines furnished on application.

## WIND ENGINES—CONTINUED.

PHOTOGRAPHIC VIEW OF A RIVER IN HOLLAND.



Fig. 2195.

WIND ENGINES USED FOR IRRIGATION—HOLLAND.



Fig. 2196.

Special Circular of Wind Engines furnished on application.

## WIND ENGINES—CONTINUED.

A GERMAN FISHING PORT NEAR HAMBURG.



Fig. 2197.

ON A STOCK FARM IN HOLLAND.



Fig. 2198.

Special Circular of Wind Engines furnished on application.



## WIND ENGINES — CONTINUED.

A GRIST-MILL. A. D. 1760.



Fig. 2199.

The above illustration is from a photograph taken by our artist in the spring of 1893. It is located on Long Island, N. Y., and during the Revolutionary War was a source of supplies for the American soldiers.

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.



Fig. 2200.

The above illustration shows a 5,000-gallon Tank elevated 50 feet and mounted with a 12-foot Pumping Wind Engine, and supplies water for a large farm. (Property of H. E. Bridge, Walpole, N. H., and St. Louis, Mo.)

Special Circular of Wind Engines furnished on application.

## WIND ENGINES—CONTINUED.



Fig. 2201.

The above illustration shows a Rhode Island Farm Barn with a 12-foot Power Wind Engine, and which, in addition to supplying water for stock and house purposes, also furnishes power for running several machines. Special Circular of Wind Engines furnished on application.

## RESERVOIR TANKS.



Fig. 2202.

The above illustration, taken from a photograph, shows our Frost-proof Tank for town, railroad and farm purposes, which we erect in all sizes from 1,000 to 80,000 gallons capacity. The above engraving shows a Tank of 52,000 gallons capacity, erected on a hard pine frame, 28 feet to the bottom of the Tank.

For price of Tanks see pages 691 and 692. Plans for erecting and frost-proofing furnished each purchaser.

Special Circular of Wind Engines furnished on application.



## WIND ENGINES—CONTINUED.



Fig. 2203.

The above cut represents a 16-foot Steel Wind Engine and 15,000-gallon Tank on a 40-foot Tower.  
(The property of W. P. Anderson, Watch Hill, R. I.)



R. D. WOOD & CO.'S INDICATOR VALVE POST.

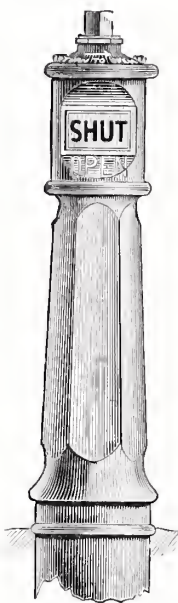


Fig. 2204.

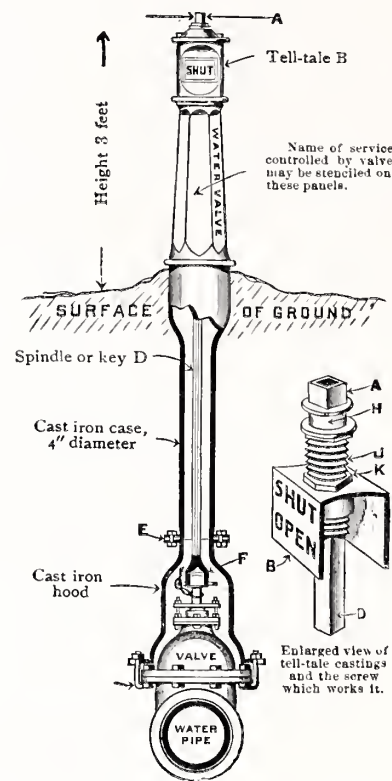


Fig. 2205.

Designed especially for use with Water Valves connected with Fire Service, in mill and factory yards, etc. This Post shows plainly to every passer-by whether valve is open or shut. It avoids the delay of hunting for a flushgate box hidden under snow or dirt, or the delay of opening a frozen gatebox cover.

Turning the spindle, D, screws the telltale up or down so proper sign appears at opening or window in head of post. The square spindle, D, slides freely in a square hole extending through the screw, J. Thus settlement or lifting by frost does not affect telltale.

There are two telltales on opposite sides of Post. Letters are 1½ inches high, of black enamel, fused on a white ground of porcelain enamel—very distinct and durable.

All bearings and rubbing surfaces are rust-proof, being bushed with brass.

Screw, J, is only part requiring change to fit the various sizes and makes of valves.

In city streets the Posts can be set at curb-stone line like a hydrant, and thus form no obstruction.

A Lock Hasp, to seal valve against tampering, furnished if desired.

A Hand Wheel also furnished, if desired, as an extra.

This Indicator Post can be applied to any ordinary make of valve up to 16-inch, and is furnished combined with Valve, or separate, or can be applied to valves already in use.

Price. . . . . Each. \$40.00

In ordering, specify depth from ground line to bottom of pipe in trench ; size and make of valve ; and whether valve opens by turning to right or left ; also number of turns required to open valve.

# DROP-FORGED MACHINE WRENCHES.

## BAR STEEL.

### SINGLE-END WRENCH FOR STANDARD HEXAGON NUTS.



Fig. 2206.

No.	Length, Inches.	Thickness of Head, Inches.	For Standard Hexagon Nuts for Bolts.	FINISHED.		UNFINISHED.	
				Size of Opening.	Price.	Size of Opening.	Price.
46	5½	⅜	¼	½	\$0.24	15/16	\$0.12
47	6	⅜	5/16	9/16	.30	15/16	.15
48	6½	⅜	¾	11/16	.36	15/16	.18
49	7½	⅜	7/8	1 1/16	.40	15/16	.20
50	8½	⅜	1	1 1/8	.50	15/16	.25
51	9½	⅜	1 1/8	1 3/8	.60	15/16	.30
52	11	⅜	1 1/4	1 5/8	.70	1 1/16	.35
53	12	⅜	1 1/2	1 7/8	.80	1 1/8	.40
54	14	⅜	1 3/4	2	.90	1 1/4	.45
55	15	⅜	1 7/8	2 1/8	1.20	1 1/2	.60
56	17½	⅜	1 5/8	2 1/4	1.50	1 3/4	.75
57	18½	1	1 3/4	2 3/8	2.00	1 7/8	1.00
58	19½	1 1/8	1 7/8	2 1/2	2.50	2	1.25
59	20½	1 1/4	1 7/8	2 3/4	3.20	2 1/8	1.60
60	22	1 1/2	1 7/8	2 7/8	4.00	2 1/4	2.00
61	24	1 3/4	1 7/8	2 3/4	5.00	2 1/2	2.50

### DOUBLE-END WRENCH FOR STANDARD HEXAGON NUTS.



Fig. 2207.

No.	Length, Inches.	Thickness of Head, Inches.	For Standard Hexa- gon Nuts for Bolts.	FINISHED.		UNFINISHED.	
				Size of Opening.	Price.	Size of Opening.	Price.
62	6	⅜	¼ and 5/16	½ and 9/16	\$0.40	15/16 and 1	\$0.20
63	7½	⅜	5/16 and ¾	9/16 and 1 1/16	.50	15/16 and 1 1/8	.25
64	9½	⅜	¾ and 1	1 1/16 and 1 1/8	.70	1 1/8 and 1 1/4	.35
65	12	⅜	1 and 1 1/8	1 1/8 and 1 3/8	1.00	1 1/4 and 1 1/2	.50
66	15½	⅜	1 1/8 and 1 1/4	1 3/8 and 1 5/8	1.30	1 1/2 and 1 3/4	.65
67	19	⅜	1 1/4 and 1 1/2	1 5/8 and 2	2.50	1 3/4 and 2	1.25
68	21½	1 1/4	1 1/2 and 1 3/4	2 and 2 1/8	4.00	2 and 2 1/4	2.00
69	24	1 1/2	1 3/4 and 1 7/8	2 1/8 and 2 3/4	6.00	2 1/4 and 2 1/2	3.00

The above Wrenches are represented by two cuts; 46 to 61 are single-end, and 62 to 69 are double.

DROP-FORGED MACHINE WRENCHES.

CONTINUED.

ANGLE END.



Fig. 2208.

SINGLE-END WRENCHES FOR STANDARD HEXAGON NUTS.

No.	Length. Inches.	Thickness of Head. Inches.	FINISHED.		UNFINISHED.	
			Size of Opening.	Price.	Size of Opening.	Price.
90	3	$\frac{5}{32}$	$\frac{5}{16}$	\$0.16	$\frac{9}{32}$	\$0.08
91	$3\frac{3}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	.18	$\frac{1}{8}$	.09
92	5	$\frac{1}{4}$	$\frac{1}{4}$	.20	$\frac{1}{4}$	.10
93	$5\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	.24	$\frac{1}{2}$	.12
94	$6\frac{1}{2}$	$\frac{5}{16}$	$\frac{1}{2}$	.28	$\frac{1}{2}$	.14
95	$7\frac{1}{2}$	$\frac{7}{16}$	$\frac{3}{4}$	.34	$\frac{3}{4}$	.17
96	$8\frac{1}{2}$	$\frac{7}{16}$	$\frac{7}{8}$	.40	$\frac{7}{8}$	.20
97	$9\frac{1}{4}$	$\frac{7}{16}$	$1\frac{1}{8}$	.50	$1\frac{1}{8}$	.25
98	10	$\frac{9}{16}$	$1\frac{1}{4}$	.64	$1\frac{1}{4}$	.32
99	$11\frac{1}{2}$	$\frac{9}{16}$	$1\frac{1}{2}$	.80	$1\frac{1}{2}$	.40
100	$13\frac{1}{2}$	$\frac{3}{4}$	$1\frac{7}{8}$	1.00	$1\frac{7}{8}$	.50
101	$14\frac{1}{2}$	$\frac{3}{4}$	$1\frac{3}{4}$	1.30	$1\frac{3}{4}$	.65
102	$16\frac{1}{2}$	$1\frac{5}{16}$	$1\frac{3}{4}$	1.70	$1\frac{3}{4}$	.85
103	$18\frac{1}{2}$	$1\frac{5}{16}$	2	2.20	2	1.10
104	$20\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{3}{8}$	2.80	$2\frac{3}{8}$	1.40
105	$22\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{3}{4}$	3.50	$2\frac{3}{4}$	1.75
106	25	$1\frac{3}{8}$	$2\frac{7}{8}$	4.20	$2\frac{7}{8}$	2.10
107	28	$1\frac{3}{8}$	$2\frac{3}{4}$	5.00	$2\frac{3}{4}$	2.50

ANGLE END.



Fig. 2209.

DOUBLE-END WRENCHES FOR STANDARD HEXAGON NUTS.

No.	Length. Inches.	Thickness of Head. Inches.	FINISHED.		UNFINISHED.	
			Size of Opening.	Price.	Size of Opening.	Price.
108	3	$\frac{5}{32}$	$\frac{5}{16}$ and $\frac{1}{8}$	\$0.24	$\frac{9}{32}$ and $\frac{1}{8}$	\$0.12
109	5	$\frac{1}{4}$	$\frac{1}{4}$ and $\frac{1}{2}$	.36	$\frac{1}{4}$ and $\frac{1}{2}$	.18
110	$6\frac{1}{2}$	$\frac{5}{16}$	$\frac{1}{2}$ and $\frac{3}{4}$	.50	$\frac{1}{2}$ and $\frac{3}{4}$	.25
111	7	$\frac{3}{8}$	$\frac{3}{4}$ and $1$	.60	$\frac{3}{4}$ and $1$	.30
112	9	$\frac{7}{16}$	$1$ and $1\frac{1}{8}$	.70	$1$ and $1\frac{1}{8}$	.35
113	12	$\frac{9}{16}$	$1\frac{1}{8}$ and $1\frac{1}{4}$	1.00	$1\frac{1}{8}$ and $1\frac{1}{4}$	.50
114	15	$\frac{3}{4}$	$1\frac{1}{4}$ and $1\frac{3}{4}$	1.60	$1\frac{1}{4}$ and $1\frac{3}{4}$	.80
115	19	$1\frac{1}{8}$	2 and $2\frac{1}{4}$	2.50	2 and $2\frac{1}{4}$	1.25
116	21	$1\frac{3}{8}$	$2\frac{1}{4}$ and $2\frac{3}{4}$	4.00	$2\frac{1}{4}$ and $2\frac{3}{4}$	2.00
117	24	$1\frac{3}{8}$	2 and $2\frac{3}{4}$	6.00	2 and $2\frac{3}{4}$	3.00

# VAPOR PANS.



Fig. 2210.

SIZE.	LENGTH.	WIDTH.	DEPTH.	PRICE.
No. 1.	52 inches.	11 inches.	6 inches.	\$4.00

Vapor Pans are for the purpose of increasing the moisture of the atmosphere in early-forcing graperies, orchid and hothouses. They are made with a socket at each end for the pipes to pass through, and slipped on when the pipes are put in place, and afterward the sockets are caulked in the usual manner.

They have sockets  $4\frac{1}{2}$  inches inside diameter, or  $4\frac{3}{8}$  if so ordered.

# VAPOR PANS, MOVABLE ENDS.



Fig. 2211.

SIZE.	LENGTH.	WIDTH.	DEPTH.	PRICE.
No. 1.	52 inches.	11 inches.	6 inches.	\$4.50

These Vapor Pans are fitted with movable ends to readily attach to pipes that are all ready in place.

They have sockets  $4\frac{1}{2}$  inches inside diameter, or  $4\frac{3}{8}$  inches if so ordered.



STOP VALVES.

No. 2.

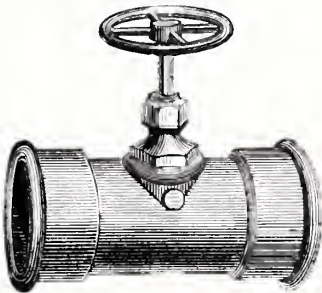


Fig. 2212.

No. 2A.

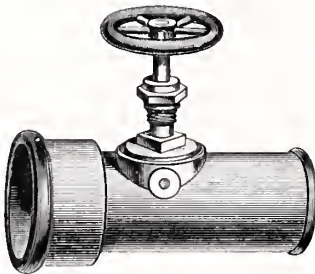


Fig. 2213.

No. 2B.

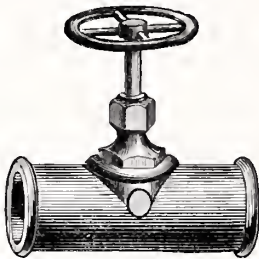


Fig. 2214.

No. 2 ANGLE.

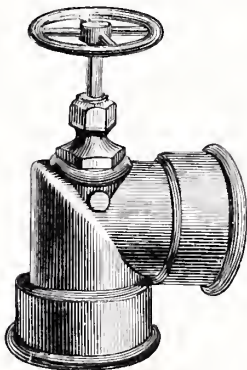


Fig. 2215.

No. 2 TEE.

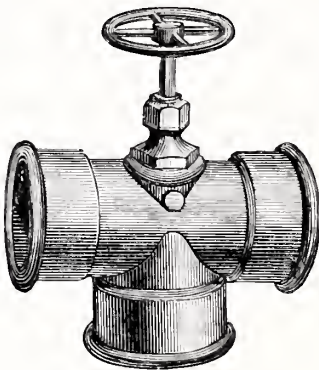


Fig. 2216.

	Size of Valve Passage.	Inside Diameter of Socket.	Price.
Trade No. 1 . . . . .	2 inches.	3 inches.	\$3.75
" " 1. Angle . . . . .	2 "	3 "	3.75
" " 2 . . . . .	2 1/2 "	4 1/2 "	5.00
" " 2A . . . . .	2 1/2 "	4 1/2 "	5.00
" " 2B . . . . .	2 1/2 "	4 1/2 "	5.00
" " 2. Tee . . . . .	2 1/2 "	4 1/2 "	5.75
" " 2. Angle . . . . .	2 1/2 "	4 1/2 "	5.50
" " 3 . . . . .	3 1/2 "	4 1/2 "	8.00
" " 3. Tee . . . . .	3 1/2 "	4 1/2 "	8.75
" " 3. Angle . . . . .	3 1/2 "	4 1/2 "	. .
" " 4 . . . . .	3 1/2 "	4 1/2 "	10.50
" " 5 . . . . .	4 "	5 1/2 "	. .
" " 6 . . . . .	5 "	6 1/4 "	. .

## STOP VALVES—CONTINUED.

No. 3.

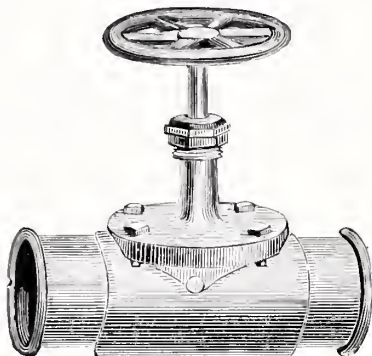


Fig. 2217.

No. 4.

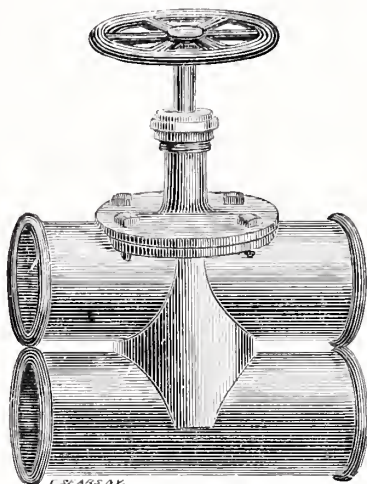


Fig. 2218.

No. 1.

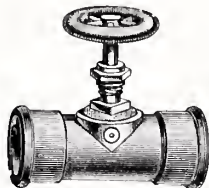


Fig. 2219.

No. 1 ANGLE.

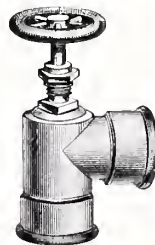


Fig. 2220.

The No. 1 and No. 1 Angle Valve are for 2-inch cast iron pipe.

The No. 2 Valve is for 4-inch pipe, and is furnished with the sockets at both ends, as shown in the cut, or with one or both ends plain, like the cuts 2212, 2213 and 2214.

Nos. 5 and 6, in shape and construction are similar to No. 3.

We make Nos. 2, 3 and 4 with socket,  $4\frac{1}{4}$  inches inside diameter, to suit 4-inch light drain pipe.

No. 4 has a valve to open or close the passage between the upper and lower pipes, and is used at divisions in the house, or where it is required to form a return passage between the two pipes, and by other valves to stop the flow, or shut the water out of the pipes beyond the valves.

# GREENHOUSE FITTINGS.

## EXPANSION TANKS.



Fig. 2221.

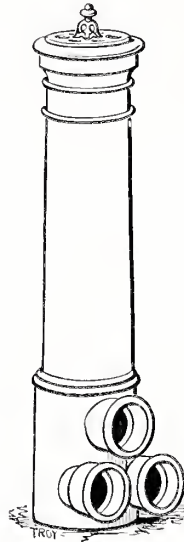


Fig. 2222.

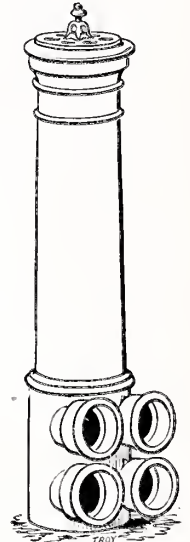


Fig. 2223.

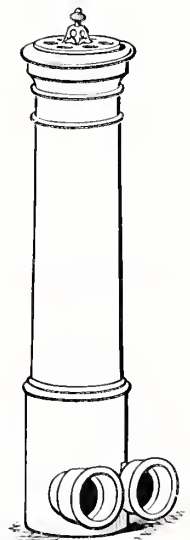


Fig. 2224.

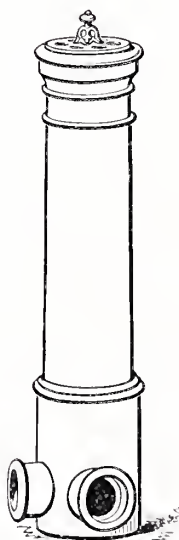


Fig. 2225.

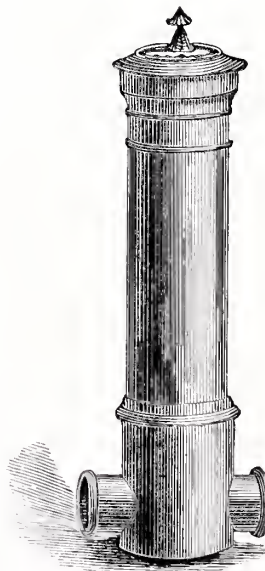


Fig. 2226.

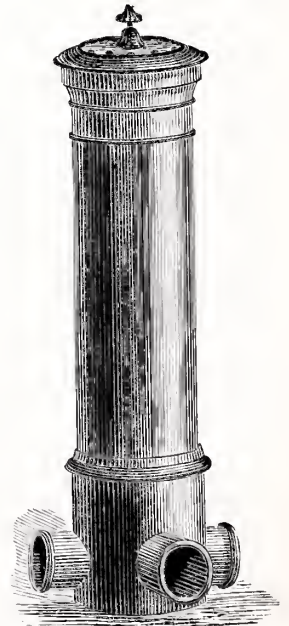


Fig. 2227.

# GREENHOUSE FITTINGS—CONTINUED.

## EXPANSION TANKS.

Expansion Tanks, if properly placed, secure an outlet to the pipes for the escape of air or steam, and dispense with the necessity for air cocks or air pipes; and they also serve as a reservoir to hold the increase in the volume of water contained in the boiler and pipes when heat is applied. The expansion of water between the temperatures of 40 and 212 degrees is equal to one gallon in every twenty-three; therefore the size of the Tank or Tanks, above the inlets for the pipes, should be capable of holding one twenty-third part of all the water which is contained in the boiler and pipes that are connected with them.

They are ornamental in appearance, and are furnished with covers fitted with revolving register plates.

The cuts represent the several positions of the sockets, and the lists below show the sizes and capacities. In ordering Tanks, the size should be indicated by the Size Number, and the desired position of sockets by the Figure Number.

## HIGH EXPANSION TANKS.

Size.	Height.	Diameter.	Suitable For.	Price.
No. 0	47 inches.	5½ inches.	75 feet of pipe.	\$3.75
“ 1	47 “	8 “	200 “ “	5.75
“ 2	47 “	9½ “	325 “ “	7.50
“ 3	47 “	10½ “	450 “ “	8.75
“ 4	52 “	12 “	700 “ “	11.50
“ 5	52 “	16 “	1500 “ “	16.50

## LOW EXPANSION TANKS.

Size.	Height.	Diameter.	Suitable For.	Price.
No. 1	33 inches.	8 inches.	160 feet of pipe.	\$4.50
“ 2	33 “	9½ “	250 “ “	5.25
“ 3	33 “	10½ “	375 “ “	5.75
“ 4	33 “	12 “	475 “ “	7.75

The Low Tanks are suitable for houses with low roofs, and are usually used in connection with one tier of pipes only, the sockets being on the same level.

All Tanks have sockets 4½ inches inside diameter, unless otherwise ordered. See cuts, page 778.



# GREENHOUSE FITTINGS—CONTINUED.

The Heating Pipes are in nine-foot lengths, measuring four inches outside diameter, and weighing 11 to 12 pounds to the foot. They are of substantial thickness and strength, and capable of withstanding the strain arising from the continual expansion and contraction in length, which is an important consideration in long lines of pipe. The long pipes are advantageous, as they require a fewer number of joints, pipe chairs and supporting piers.

Curved Pipes to suit houses of circular form. These we make to order of the same diameter and weight as above, and of any radius required.

We have constantly on hand all the varieties of pipe fittings illustrated on the following pages. The sockets of the pipes and fittings measure four and one-half inches internal diameter.

9 Feet Long.

No. 1.

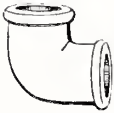


Fig. 2228.

No. 2.

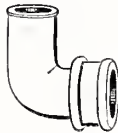


Fig. 2229.

No. 33.

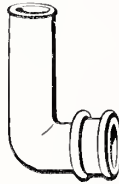


Fig. 2230.

No. 3.



Fig. 2231.

No. 5.  
OCTAGON.



Fig. 2232.

No. 6.  
HEXAGON.



Fig. 2233.

No. 7.

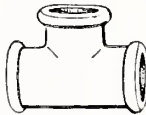


Fig. 2234.

No. 32.

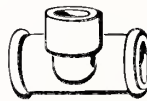


Fig. 2235.

No. 9.

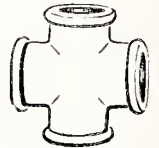


Fig. 2236.

No. 11.

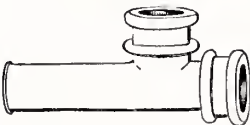


Fig. 2238.

No. 34.

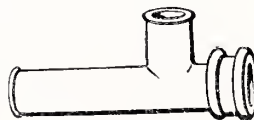


Fig. 2239.

No. 12.

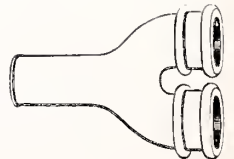


Fig. 2240.

Fig. 2237.

# GREENHOUSE FITTINGS.

## CONTINUED.

No. 13.

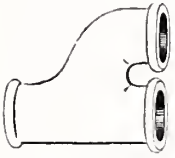


Fig. 2241.

No. 14.

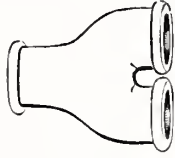


Fig. 2242.

No. 15.



Fig. 2243.

No. 16.



Fig. 2244.

No. 17.

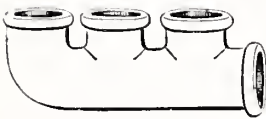


Fig. 2245.

No. 18.



Fig. 2246.

No. 19.

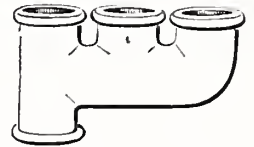


Fig. 2247.

No. 20.

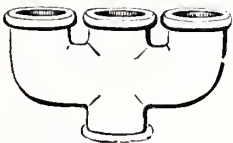


Fig. 2248.

No. 38.

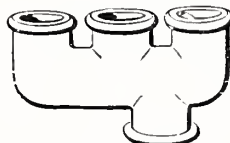


Fig. 2249.

No. 39.

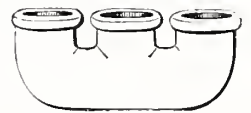


Fig. 2250.

No. 21.

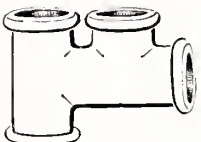


Fig. 2251.

No. 35.

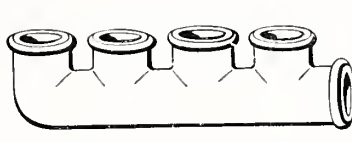


Fig. 2252.

No. 37.

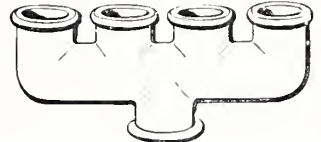


Fig. 2253.

No. 43.



Fig. 2254.

No. 31.



Fig. 2255.

No. 30.



Fig. 2256.

No. 25.

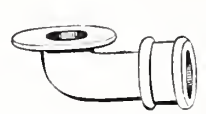


Fig. 2257.

No. 24. DOUBLE HUB. No. 50. SLEEVE.



Fig. 2258.



Fig. 2259.

No. 26.



Fig. 2260.

No. 28. BUSHING. No. 29. PLUG.

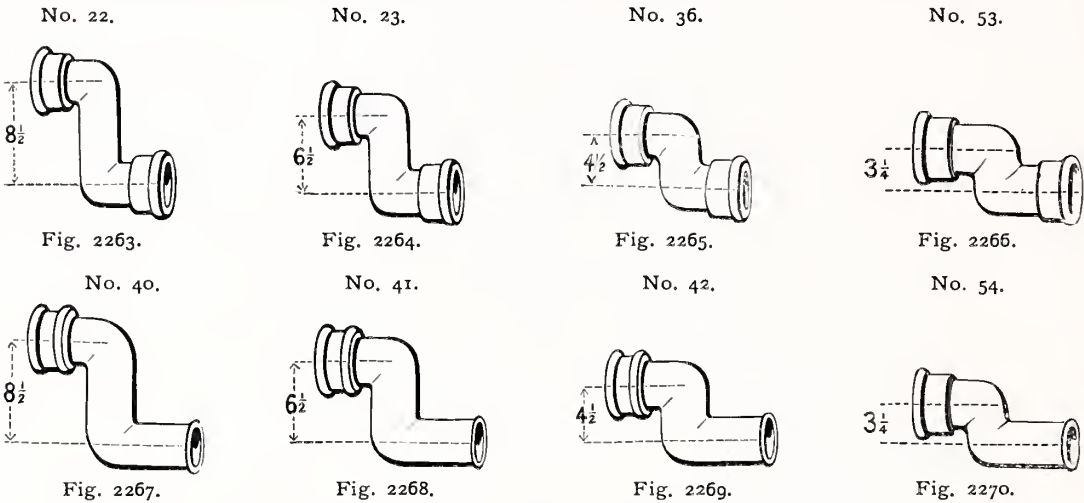


Fig. 2261.

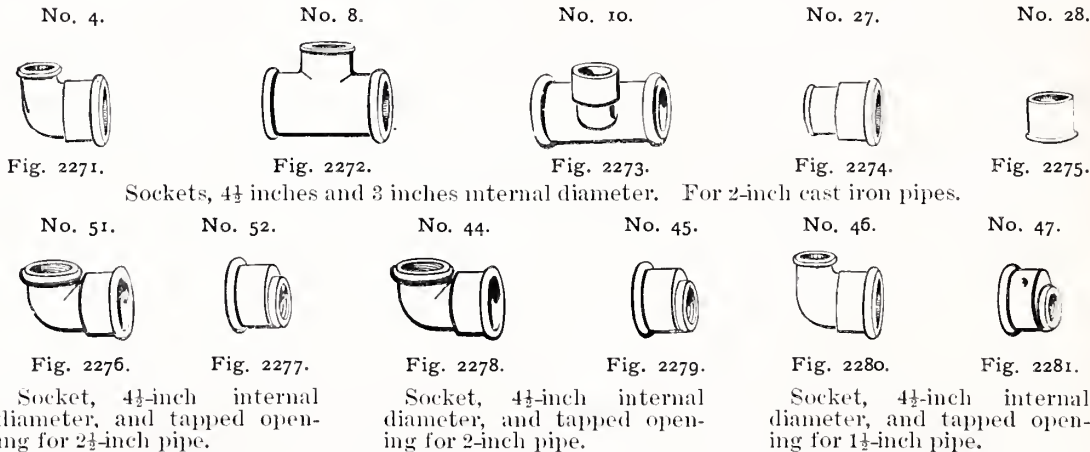


Fig. 2262.

GREENHOUSE FITTINGS—CONTINUED.



REDUCING FITTINGS.



Sockets, 4 1/2 inches and 3 inches internal diameter. For 2-inch cast iron pipes.

Socket, 4 1/2-inch internal diameter, and tapped opening for 2 1/2-inch pipe.

Socket, 4 1/2-inch internal diameter, and tapped opening for 2-inch pipe.

Socket, 4 1/2-inch internal diameter, and tapped opening for 1 1/2-inch pipe.

Or the same fittings with sockets 4 1/2-inch internal diameter, if so ordered.



Socket, 3 inches internal diameter, tapped opening for 1 1/2-inch pipe.

We also make a large assortment of Fittings of the following sizes :

With sockets 3 inches internal diameter, for 2-inch "street" pipe.	
" " 3 1/4 " " " " 3 " boiler tubes.	
" " 4 1/4 " " " " 4 " light drain pipe.	
" " 5 1/4 " " " " 4 " "street" pipe.	

Other sizes to order.

4-inch Pipe . . . . .	Per foot.	\$0.20
Elbows, Trade Nos. 1, 2, 3, 5, 6 and 33 . . . . .	Each.	.65
Sleeves and Double Hubs . . . . .	"	.40
Returns and Offsets, Trade Nos. 15, 22, 23, 36, 40, 41, 42, 53 and 54 . . . . .		.85
Branch Tees, etc., Trade Nos. 7, 11, 12, 13, 14, 16, 30, 31, 32 and 34 . . . . .		1.10
Branches, Trade Nos. 9, 17, 18, 19, 20, 21, 38 and 39 . . . . .		1.75
Branches, Nos. 35, 37 and 43 . . . . .		2.20

# GREENHOUSE FITTINGS—CONTINUED.

## PIPE CHAIRS.



Fig. 2284.

Set 2 pipes . . . \$0.12.

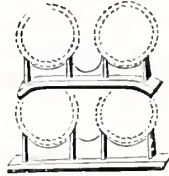


Fig. 2285.

Set 4 pipes . . . \$0.22.

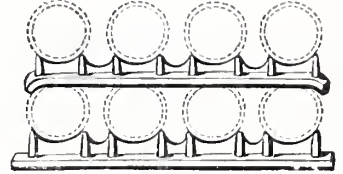


Fig. 2286.

Set 8 pipes . . . \$0.55.

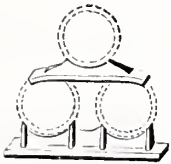


Fig. 2287.

Set 3 pipes . . . \$0.20.

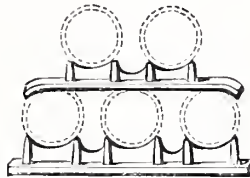


Fig. 2288.

Set 5 pipes . . . \$0.40.

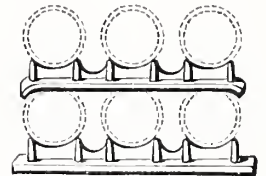


Fig. 2289.

Set 6 pipes . . . \$0.45.

## PIPE HOOKS.



Fig. 2290.

Set 1 pipe, with bolts . . . \$0.16.



Fig. 2291.

Set 2 pipes, with bolts . . . \$0.32.

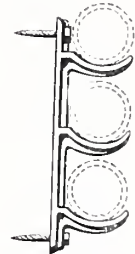


Fig. 2292.

Set 3 pipes, with bolts . . . \$0.45.

## PIPE STRAPS.

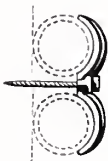


Fig. 2293.

Set 2 pipes, with bolts . . . \$0.20.

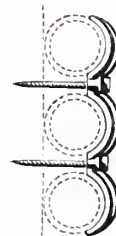


Fig. 2294.

Set 3 pipes, with bolts . . . \$0.35.



STANDARD FLANGES.

Adopted by the Master Steam and Hot Water Fitters' Association of the United States, at then Fifth Annual Convention held at Chicago, Ill., June 6th to 9th, 1893.

SIZES FOR STANDARD FLANGES.

Pipe Size, Inches.	Pipe Thickness, $\frac{d}{P+100} + .333\left(1 - \frac{d}{100}\right)$ S	Thickness, nearest fraction, Inches.	Stress on Pipe per sq. inch at 200 lbs.	Radius of Fillet, Inches.	Flange Diameters, Inches.	Flange Thickness, Inches.	Width Flange Face, Inches.	Bolt Circle Diameter, Inches.	Number of Bolts.	Bolt size, Diameters, Inches.	Bolt Length, Inches.	Stress on each Bolt per square inch, at bottom of thread at 200 lbs.
2	.409	$\frac{1}{16}$	460	$\frac{1}{4}$	6	$\frac{5}{8}$	2	$4\frac{3}{4}$	4	$\frac{1}{4}$	2	825
2 $\frac{1}{2}$	.429	$\frac{1}{16}$	550	$\frac{1}{4}$	6 $\frac{3}{4}$	$\frac{1}{2}$	2 $\frac{1}{2}$	$5\frac{1}{4}$	4	$\frac{1}{4}$	2 $\frac{1}{2}$	1050
3	.448	$\frac{1}{16}$	690	$\frac{1}{4}$	7 $\frac{1}{2}$	$\frac{1}{2}$	2 $\frac{1}{2}$	6	4	$\frac{1}{4}$	2 $\frac{1}{2}$	1330
3 $\frac{1}{2}$	.466	$\frac{1}{16}$	700	$\frac{1}{4}$	8	$\frac{1}{2}$	2 $\frac{1}{2}$	$6\frac{1}{2}$	4	$\frac{1}{4}$	2 $\frac{1}{2}$	2530
4	.486	$\frac{1}{8}$	800	$\frac{1}{4}$	8 $\frac{3}{4}$	$\frac{1}{2}$	2 $\frac{3}{8}$	$7\frac{1}{4}$	4	$\frac{1}{4}$	2 $\frac{3}{8}$	2400
4 $\frac{1}{2}$	.498	$\frac{1}{8}$	900	$\frac{1}{4}$	9 $\frac{1}{4}$	$\frac{1}{2}$	2 $\frac{3}{8}$	$7\frac{3}{4}$	6	$\frac{1}{4}$	3	1430
5	.525	$\frac{1}{8}$	1000	$\frac{1}{4}$	10	$\frac{1}{2}$	2 $\frac{3}{8}$	$8\frac{1}{2}$	6	$\frac{1}{4}$	3	1630
6	.563	$\frac{1}{8}$	1060	$\frac{1}{4}$	11 $\frac{1}{4}$	1	2 $\frac{3}{8}$	$9\frac{1}{8}$	6	$\frac{1}{4}$	3	2360
7	.60	$\frac{1}{8}$	1120	$\frac{1}{4}$	12 $\frac{1}{4}$	$1\frac{1}{16}$	2 $\frac{3}{8}$	$10\frac{3}{8}$	6	$\frac{1}{4}$	3 $\frac{1}{4}$	3200
8	.639	$\frac{1}{8}$	1280	$\frac{1}{4}$	13 $\frac{1}{2}$	$1\frac{1}{8}$	2 $\frac{3}{8}$	$11\frac{3}{4}$	6	$\frac{1}{4}$	3 $\frac{1}{2}$	4190
9	.678	$\frac{1}{8}$	1310	$\frac{3}{16}$	14 $\frac{3}{4}$	$1\frac{1}{4}$	2 $\frac{3}{8}$	13	12	$\frac{1}{4}$	3 $\frac{1}{2}$	3610
10	.713	$\frac{3}{16}$	1330	$\frac{3}{16}$	16	$1\frac{3}{16}$	3	$14\frac{1}{4}$	12	$\frac{1}{4}$	3 $\frac{3}{8}$	2970
12	.79	$\frac{3}{16}$	1470	$\frac{3}{16}$	18 $\frac{1}{2}$	$1\frac{1}{2}$	3 $\frac{1}{4}$	$16\frac{1}{2}$	12	$\frac{1}{4}$	3 $\frac{3}{4}$	4280
14	.864	$\frac{1}{2}$	1600	$\frac{3}{16}$	21	$1\frac{3}{8}$	3 $\frac{1}{2}$	$18\frac{3}{8}$	12	1	4 $\frac{1}{4}$	4280
15	.904	$\frac{1}{2}$	1600	$\frac{3}{16}$	22 $\frac{1}{4}$	$1\frac{3}{8}$	3 $\frac{1}{2}$	20	16	1	4 $\frac{1}{4}$	3660
16	.946	1	1600	$\frac{1}{2}$	23 $\frac{1}{4}$	$1\frac{7}{8}$	3 $\frac{3}{4}$	$21\frac{1}{4}$	16	1	4 $\frac{1}{4}$	4210
18	1.02	$1\frac{1}{16}$	1690	$\frac{1}{2}$	25	$1\frac{9}{8}$	3 $\frac{3}{4}$	$22\frac{3}{8}$	16	1	4 $\frac{1}{4}$	4540
20	1.09	$1\frac{1}{8}$	1780	$\frac{1}{2}$	27 $\frac{1}{2}$	$1\frac{11}{8}$	3 $\frac{3}{4}$	25	20	1	4 $\frac{1}{4}$	5490
22	1.18	$1\frac{1}{4}$	1850	$\frac{1}{2}$	29 $\frac{1}{2}$	$1\frac{13}{8}$	3 $\frac{3}{4}$	$27\frac{1}{4}$	20	1	4 $\frac{1}{4}$	4320
24	1.25	$1\frac{1}{2}$	1920	$\frac{1}{2}$	31 $\frac{1}{2}$	$1\frac{7}{4}$	4	$29\frac{1}{4}$	20	1	4 $\frac{1}{4}$	5130
26	1.30	$1\frac{3}{8}$	1980	$\frac{1}{2}$	33 $\frac{3}{4}$	$1\frac{7}{4}$	4	$31\frac{1}{4}$	24	1	4 $\frac{1}{4}$	5030
28	1.38	$1\frac{1}{2}$	2040	$\frac{1}{2}$	36	$1\frac{1}{2}$	4	$33\frac{1}{2}$	28	1	4 $\frac{1}{4}$	5000
30	1.48	$1\frac{1}{2}$	2000	$\frac{1}{2}$	38	$1\frac{1}{2}$	4	$35\frac{1}{2}$	36	1 $\frac{1}{4}$	4 $\frac{1}{4}$	4590
36	1.71	$1\frac{3}{4}$	1920	$\frac{1}{2}$	44 $\frac{1}{2}$	$1\frac{3}{4}$	4 $\frac{1}{2}$	42	32	1 $\frac{1}{2}$	4 $\frac{1}{4}$	5790
42	1.87	2	2100	$\frac{1}{2}$	51	$1\frac{3}{4}$	4 $\frac{1}{2}$	$48\frac{1}{2}$	36	1 $\frac{1}{2}$	4 $\frac{1}{4}$	5700
48	2.17	2 $\frac{1}{4}$	2130	$\frac{1}{2}$	57 $\frac{1}{2}$	2	4 $\frac{1}{2}$	$54\frac{3}{4}$	56	1 $\frac{3}{4}$	4 $\frac{1}{4}$	6090

Sizes up to 24 inches are designed for 200 lbs. or less.

Sizes from 24 to 48 inches are divided into two scales, one for 200 lbs., the other for less.

The two sizes of bolts given are for medium and high pressures.

The sudden increase in diameters at 16 inches is due to the possible insertion of wrought iron pipe, making, with a nearly constant width of gasket, a greater diameter desirable.

When wrought iron pipe is used, if thinner flanges than those given are sufficient, it is proposed that bosses be used to bring the nuts up to the standard lengths. This avoids the use of reinforcement around the pipe.

Figures in the third, fourth, fifth and last columns refer to pipe for 200 lbs. pressure.















